
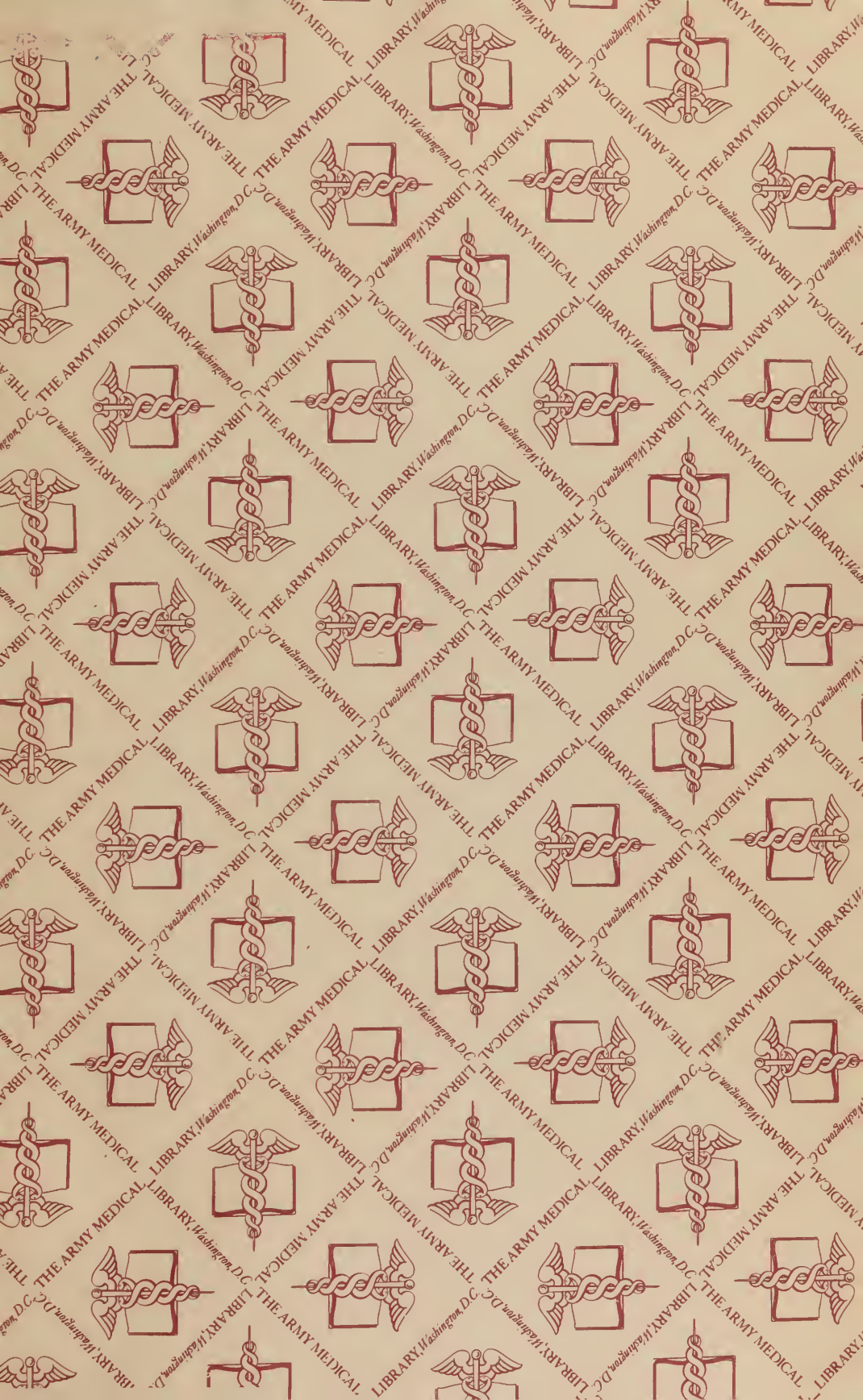


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THE
AMERICAN CYCLOPÆDIA
OF
DOMESTIC MEDICINE
AND
HOUSEHOLD SURGERY.

A RELIABLE GUIDE FOR EVERY FAMILY.

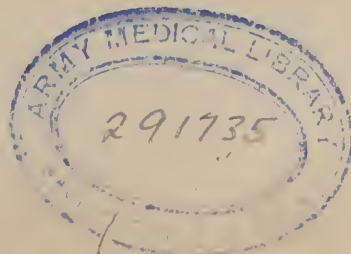
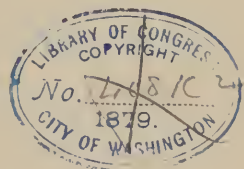
CONTAINING,
IN THE PLAINEST LANGUAGE,
FULL DESCRIPTIONS OF THE VARIOUS PARTS OF THE HUMAN BODY; ACCOUNTS OF THE
NUMEROUS DISEASES TO WHICH MAN IS SUBJECT—THEIR CAUSES, SYMPTOMS,
TREATMENT AND PREVENTION—WITH PLAIN DIRECTIONS HOW TO
ACT IN CASE OF ACCIDENTS AND EMERGENCIES OF EVERY
KIND: ALSO, FULL DESCRIPTIONS OF THE DIFFER-
ENT ARTICLES USED IN MEDICINE, AND
EXPLANATIONS OF MEDICAL AND
SCIENTIFIC TERMS.

WITH NUMEROUS ILLUSTRATIONS.

EDITED BY
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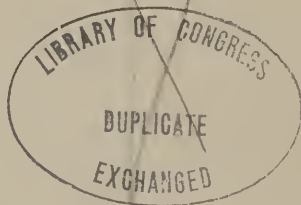
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PREFACE.

Although very great progress has been made during the last two decades in disseminating knowledge among the people of this continent, it is beyond dispute that the most *lamentable* ignorance still prevails in many quarters in regard to the laws which regulate health, and the science which treats of the *prevention* and *cure* of disease. Much of the sickness and misery which almost continually linger around so many of our American homes, might be avoided by a little more sensible attention to sanitary requirements. Many valuable lives are lost to the community every year by want of cleanliness, insufficient ventilation, deficient water supply, impure or improperly-cooked food, and the total neglect of those *general principles* which lie at the very foundation of human life and health. The idea which once prevailed, that a knowledge of these subjects should be monopolized by the medical profession and dealt out to the people as it was paid for, or as an act of charity, is one not worthy of a moment's consideration. There are a thousand reasons why a fair acquaintance with the science of *Medicine* and the philosophy of *cure* and *prevention* should be acquired by all, and it is a gratifying fact that already in our common schools, as well as in our higher institutions of learning, physiology and hygiene are being taught as an indispensable branch of the education of every child in the land. The spreading abroad of knowledge of this kind, instead of engendering presumption in the treatment of serious forms of illness, and endangering life, will enable people more intelligently to state their case to their physicians, and will be the best safeguard against the unblushing *quackery* which to-day disgraces our country.

It is not intended, in any way, by the publication of this work to supersede the regular physician. Cases, however, are constantly occurring, in which a little intelligent nursing, and the application of some

simple remedy in the outset, will serve to ward off a serious attack of illness, and in which a knowledge of those symptoms which indicate danger, will result in professional assistance being sought and secured before it is too late. Alarming and dangerous accidents frequently occur at such a distance from proper medical or surgical aid, that unless some one happens to be present with presence of mind to act, and knowledge *how* to act in cases of emergency, valuable life is forfeited which might have been saved. To meet these every-day requirements of our people, and to furnish them at as cheap a rate as possible, consistent with usefulness, with a clear, concise and readable account of popular sanitary science, domestic practice and household surgery, is the object of the publishers in the production of this work. In its preparation the standard works and medical and surgical journals of both Great Britain and America have been freely consulted, and in many cases, new ideas and much excellent matter have been drawn from them.

The articles have all been arranged alphabetically, in order that the unprofessional reader may the sooner meet with the information desired, while numerous cross-references will enable him to peruse connectedly all the different articles relative to any particular subject.

In describing diseases, topical headings have been made use of, so that each subject may be presented in the clearest and most intelligent manner.

In the treatment of diseases, the doses given in all cases, where not otherwise stated, are those for an adult, and they may be diminished to suit the age by consulting the table found under the article DOSE.

The *weights and measures* used are those prescribed by the United States Pharmacopœia, and described under the article WEIGHTS AND MEASURES, but an account will also be found under the heading METRIC SYSTEM of the French method, which is now coming into vogue among many prominent physicians and druggists, and will doubtless before many years be the standard method of weights and measures on this continent.

The articles of the *materia medica* have, in most instances, been inserted under their scientific and botanical names, with references from their simpler and more commonly used appellations. This has been

done for the purpose of educating the reader, and accustoming him to the use of the scientific terms which are now very frequently met with in newspaper and magazine articles.

In the pronunciations throughout this work, we have only used marked letters where the sounds of the vowels could not be made apparent without the use of characters; and this has rarely occurred excepting with the letter *a*.

The long sound of each of the vowels marked thus, *ā*, *ē*, *ī*, *ō*, *ū*, is termed its *alphabetic* or *name* sound, from the fact that it is the sound that is heard in naming the letter. We have rarely had occasion to mark this sound.

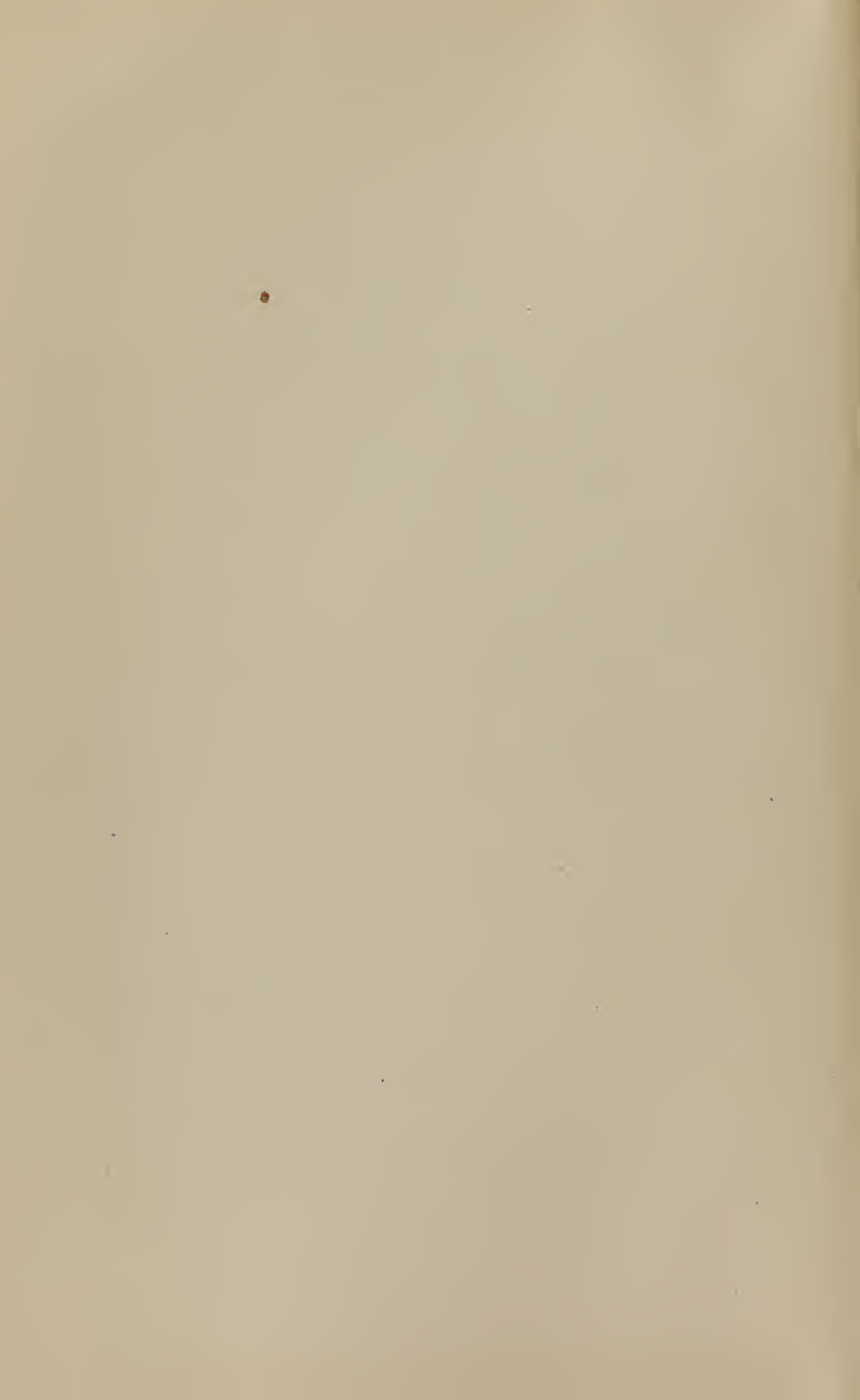
The Italian or grave sound of *a* is marked thus, *ä*—as in the pronunciation of *almond*. (See ALMOND EMULSION.)

The slight, indistinct, or obscure sound of the vowel is marked thus, *a*—as in the pronunciation of *mental*. (See MENTAL EXERCISE.)

The letter *a* at the end of a word, marked with a dot under it, approaches the Italian sound of *a* in father, for example, the pronunciation of CINCHONA, which see.

All vowels marked with the dot underneath, occur only in unaccented syllables.

All vowels occurring in the pronunciations contained in this work, that are not marked, have *distinct* sounds, which are apparent independently of characters.



THE AMERICAN CYCLOPÆDIA
OF
DOMESTIC MEDICINE
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HOUSEHOLD SURGERY.

A.

A. 1. [Gr. *a*, privative], is a prefix of numerous medical terms, denoting the absence or privation of anything; as *aphonia*, loss of voice; *anodyne*, without pain; *asphyxia*, loss of pulse. When the word to which it is prefixed commences with a vowel, *v* or *n* is inserted: thus, *anorexia*, want of appetite.

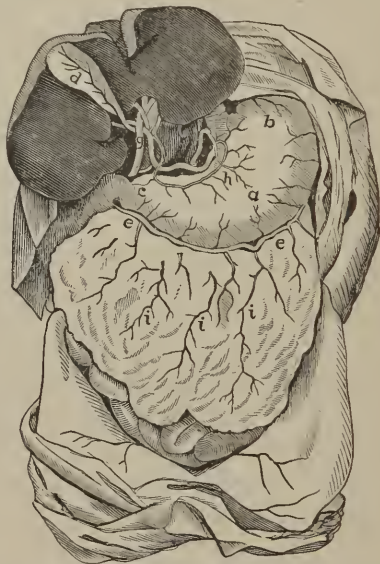
2. A. $\bar{a}\bar{a}$, [*ava*, *ana*, of each], used in prescriptions after two or more ingredients have been mentioned, denotes that the specified quantity of each ingredient should be taken.

3. $\bar{a}.\bar{a}.\bar{a}$, a contraction of *amalgama*, an amalgam, a mixture of mercury with another metal.

ABBREVIATION, *ab-bre-ve-d'-shun* [*abbreviatio*, *onis*, *f.*], certain abbreviations, consisting of signs, letters or parts of words; are used in medical formulæ and prescriptions, for the sake of expedition: thus, *R* signifies *recipe*, take. (See PRESCRIPTION.)

ABDOMEN, *ab-do'-men* [Lat. *abdo*, I hide], the abdomen or belly, which is the largest cavity of the body, is separated from the chest or upper part by the diaphragm, and is bounded below by the pelvic bones. The pelvic bones also form a cavity, called the pelvis. Posteriorly the abdomen is supported and protected by the spine, and is enclosed by the short ribs and abdominal muscles. To facilitate description, medically, the abdomen may be divided by imaginary, horizontal and vertical lines. The horizontal lines drawn round the abdomen, separate it into three zones, which, by means of the vertical lines, are divided into nine anterior regions namely: 1. Epigastric; 2, umbilical; 3, hypogastric; 4 and 5,

right and left hypochondriac; 6 and 7, right and left iliac; 8 and 9, right and left inguinal. In the upper zone lies the liver, reaching from under the right ribs across to the left; the small end of the stomach is located in the epigastric, and the large end in the left hypochondriac region, and in contact with the spleen or milt. The pancreas, or sweet bread, lies behind the stomach. The middle zone contains the large bowel, the omentum, or caul, a part of the small intestines, and posteriorly, close to the spine, the kidneys. The inferior zone also contains, centrally, a portion of the small intestines; laterally, the extremities of the large intestines or colon, and when it is distended, the superior portion of the bladder. All these parts, or viscera, are supported and covered by a smooth, glistening, moist membrane, the peritoneum, which is continued over the parts within the cavity, bounded by the pelvic bones. These are, more particularly the bladder and terminal extremity of the bowels, named the rectum, and in the female, the womb and its appendages. The bladder and the womb, when distended, rise from their own proper cavity into the cavity of the abdomen. The viscera of the abdomen are divided into solid and hollow; the liver is an example of the solid; the intestines and bladder of the hollow. These give different sounds, when the covering of the abdomen, under which they lie, is slightly struck with the finger. This is a fact of much importance to the



physician in his examination of this cavity. The contents of the abdomen change their position considerably according to posture. One of the most important accidents to which this cavity is liable, is protrusion of a part of its contents through its walls, constituting rupture, or hernia. Accidental wounds penetrating the cavity of the belly, are generally fatal, and if they penetrate any of the viscera, are almost necessarily so. The diseases to which the contents of the abdomen are subject will be noticed under their respective heads. (See STOMACH, LIVER, DIAPHRAGM, PERITONEUM, PELVIS, RUPTURE.)

ABDUCTOR MUSCLES, *ab-duk'-tor*, those muscles which draw one part of the body from another. They are the antagonists of the adductor. (See ADDUCTOR MUSCLES.)

ABERRATION, *ab-er-ra'-shun* [Lat. *aberro*, to wander from]. 1. The passage of a fluid in the living body into vessels not destined to receive it, as of red blood into the capillaries. 2. The determination of a fluid to a part different from that to which it is ordinarily directed, as in vicarious hemorrhage. 3. Alienation of the mind, which is its most usual acceptance.

ABLEPSY, *ab'-lep-se* [Lat. *ablepsia*], want of sight; blindness.

ABLUMENT MEDICINES, *ab'-lu-ent*, a term formerly applied to those medicines used for purifying the blood. It has now fallen into disuse.

ABLUTION, *ab-lu'-shun* [Lat. *abluo*, I wash away], the term ablution usually denotes the removal of foreign matter from any substance by washing. It is more particularly applied to the washing of the body, or any portion of it, with water or other fluids. Washing the body regularly, is, happily in this country at least, becoming more common; but it is far from being a general habit as it should, particularly among the laboring classes, who stand the most in need of it. It is undoubtedly true that many go from January to December without thinking it necessary to bathe more than the face or hands. The body is constantly giving out through the skin gaseous, saline, and greasy matters which is essential for the health of the body. These, if not frequently removed by washing, accumulate on the surface of the skin, shut up the pores, and prevent them from performing their proper functions. Of course, if the skin is caked over with perspiration and dirt, either its own, or the dust to which many are exposed in the performance of their employments, it cannot possibly perform its functions properly. The result of neglect is, that much is retained in the system which ought not to be there; an additional load of duty is thrown upon other excreting organs, as the liver and kidneys, and if they have not the power to compensate for man's own carelessness, languor, low spirits, headaches, local accumulations of blood, gout, gravel, and many other diseases are the result. Fortunately, complete neglect cannot entirely stop the skin's functions, otherwise death itself must result. For the purpose of cleansing the skin, soft water ought to be used, if possible, with soap, good brown soap being the most effectual. A thorough purification of the entire surface of the body is necessary, at least once a week, for the proper preservation of the health. Along with this, washing over the surface with simple water, every night or morning, using the bare hands, or a sponge, followed by vigorous rubbing with a very rough towel, and if

convenient, with a flesh brush also, will preserve a healthy state of the skin. The robust, if they wash in the morning, should do so with *cold* water, immediately on rising, while heat is abundant; but the depression and subtraction of animal heat which this occasions, cannot be sustained by delicate persons, as it leaves them chilled, languid, and with impaired digestion and heartburn. Such persons ought to try the water slightly warmed, or content themselves with washing only a portion of the skin each morning. If even this cannot be borne, dry friction with a rough towel, hair-glove, or flesh brush, may be substituted. After bathing or washing, it is always important to rub the surface thoroughly with a towel, till a warm glow is produced. The towel may be followed by hair-glove or flesh brush to advantage. Water slightly warmed is always preferable for washing at night. The feet require to be washed very frequently. It is to be wondered at, how otherwise respectable people, are so insensible on this point. A large proportion of our people cannot command the use of baths for the purposes of ablution, but any person who can command water and a towel, need not dispense with the luxury. Frequent and thorough ablution is most requisite for the aged, and is often shamefully neglected by those who have the care of old people, and is visited upon them in querulousness, and troublesome bodily ailments, which attention to the duty would have prevented. It should be added, that in persons of a gouty habit, the use of the cold bath in the morning is injurious, unless followed by active exercise, which effectually restores the excretory functions of the skin. Such persons should use water slightly warmed if they bathe in the morning, or bathe later in the day with cold water. (See BATHS, SKIN, CHILDREN.)

ABNORMAL, *ab-nor'-mal* [Lat. *ab*, from, *norma*, a rule], irregular; not symmetrical, or according to rule.

ABORTION, *a-bor'-shun* [Lat. *abortio*], expulsion of the fœtus from the womb previous to the sixth month of pregnancy, is called abortion. A birth after the sixth, and before the ninth month, is known as a premature labor. It is more liable to occur at the time of each month corresponding to the menstrual period than during the interval. It is always an untoward event, and likely to exercise an unfavorable influence on the patient's health. The expulsive action of the womb may be excited at any time, but is more likely to take place before the third month, owing to the slight connection between the womb and the ovum.

Causes.—These may be either maternal or fœtal. Among the former may be mentioned, a debilitated condition of the system, uterine weakness, the presence of certain diseases, as leucorrhœa or the whites, typhus fever, scarlatina, small-pox, measles, etc. The action of certain irritating medicines, as aloes, ergot, etc., suckling the child too long,

blows, falls, straining, severe coughing, excessive exertion and mental emotion caused by anger, sorrow, joy, good or bad news suddenly told, etc. In reference to the foetal causes, it may be stated, that anything that compromises the life of the child will produce abortion. Disease of the placenta or after-birth, loss of blood, contagion communicated from the mother to the child, insufficient nutrition of the foetus, are all liable to produce miscarriage.

Symptoms.—General uneasiness, languor, and weariness, pain in the back and limbs, succeeded after the lapse of time, by labor pains of more or less intensity, and a discharge of blood or mucus from the vagina. The stomach often becomes irritable, the skin hot, and the pulse increased in frequency. The tumor in the lower part of the abdomen will be found to be tense, and larger than the period of pregnancy would warrant. These symptoms, unless the trouble is arrested by proper treatment, continue to increase in intensity until the ovum is discharged.

Treatment.—The first indication is to avert, if possible, the disaster. If the hemorrhage be very slight, and the pains be trifling, this may often be successfully accomplished. The patient should recline on a hard bed, lightly covered with clothes, in a cool room; stimulants of every kind must be avoided, and all causes of both mental and physical irritation must be removed. An attempt must be made to suspend the pain by the administration of opium, in full doses, 25 drops of laudanum repeated in two hours if necessary. Cold cloths may be applied to the external organs, and cold water be injected into the rectum. The following mixture will frequently arrest the flowing: Tincture of Indian hemp, 4 drops every two or three hours in water. If these efforts fail to arrest the action of the womb, the case must be treated as a regular confinement, and proper medical aid be solicited at once.

Preventive Treatment.—The state of the stomach and bowels should be carefully regulated, the diet be light and nutritious, and gentle exercise be taken in the open air, but not so as to occasion fatigue. Cold sponging has proved highly beneficial, applied gently, so as not to produce too great a shock. Rest, more or less absolute, is one of the most powerful preventive measures we possess. If the female has been in the habit of miscarrying, as the same period approaches again, the utmost caution must be exercised, all causes of irritation be avoided, and complete relaxation from labor indulged in until the time passes by. Both during the time, and after miscarriage, the general health must be supported by strong animal broths, fresh eggs, and meat, and if there be great debility, wine or malt liquor may be requisite.

ABORTIVES, medicines supposed to have the power of exciting abortion.

ABRASION, *ab-ra'-zhun* [Lat. *abrado*, to scrape off], a superficial lesion of the skin; a trifling but often painful accident, and where the part is subject to the action of poisonous or irritating substances, it may be a dangerous one. The cuticle is soon restored, but in the meantime it is necessary to provide a substitute. Common adhesive plaster, so frequently employed for this purpose, is much too irritating, and sometimes causes ulceration. Court plaster is much better, but is not suitable for large surfaces. Collodion is another excellent application for this form of injury. A mixture of one part of collodion with two parts of castor oil, applied with a camel's hair brush, forms a very smooth, elastic covering. It produces some smarting, which in a few minutes passes off. The principle in the treatment of an abrasion, is to protect the sensitive true skin with a light, dry, unirritating application, until nature restores the proper covering.

ABSCESS, *ab'-sess* [Lat. *abscedo*, to separate from], a circumscribed cavity in any of the tissues of the body, of abnormal formation, containing pus. (See PUS.) An abscess may be either superficial or deep, acute or chronic, common or specific. It is said to be superficial when it is immediately beneath the integument, or among the superficial muscles, and deep, when it is in some internal organ, in the substance of a bone, or bound down among the deep muscles by a large quantity of tissue. The terms, acute and chronic, have reference to the time occupied in the formation of an abscess; a common abscess is the result of ordinary inflammation, while a specific abscess is the result of some specific poison, as syphilis, glanders, or small-pox. For purposes of treatment, abscesses may be divided into phlegmonous, scrofulous, and metastatic or multiple: The first being incident to all persons; the second only to those of a strumous taint; while the third term is used to designate those collections of purulent matter, which are consequent upon injuries, operations and diseases.

1. PHLEGMONOUS ABSCESS.—Runs its course with unusual rapidity. May be found in any part of the body, and at any time of life, and may exist simultaneously in different parts of the body.

Causes.—Its immediate cause is obstructed circulation of the blood and consequent pressure upon the nerves of the affected structures. It is sometimes dependent upon some external injury, at other times upon constitutional cause, as derangement of the digestive organs, or the suppression of some important secretion, as that of the liver, kidney or womb.

Symptoms.—When open to inspection, the part is found to be red, hot, tender, and throbbing in unison with the heart. In the majority of cases the system sympathizes with the local trouble, and, even when the

abscess is of trivial size, the patient will be seized with chills, alternating with flushes of heat, and followed by copious sweats. When the case is severe, there will be high constitutional excitement. The countenance will be flushed, the eye suffused. The pulse will be full and frequent, the skin hot and dry, the urine scanty and high-colored, and great thirst and restlessness. Delirium may be present, and last until the part is relieved. When pus is fully formed, both local and constitutional symptoms usually abate, and the patient enjoys tranquil sleep. Pointing is a symptom of importance in any abscess. It is most conspicuous where there is most discoloration of the skin; looks livid and dusky, and feels thin, as if it were ready to give way. Fluctuation is another symptom of great importance. It is discovered by alternate pressure with the hands or fingers resting upon opposite sides of the abscess. As the one hand or finger sinks in, the other is elevated, and when this takes place, there is no doubt about the presence of some kind of fluid. The nature of the fluid may always be determined by inserting an exploring needle. The affections most likely to be confounded with abscess are aneurism and hernia.

Treatment.—As soon as suspected, frequent fomentation with hot water, and the prompt administration of a cooling laxative, as epsom or rochelle salts, may succeed in preventing its formation. When the symptoms indicate with tolerable certainty the presence of matter, warm, soft poultices—linseed or bread and water—must be continually applied, having as much regard to ease as possible. The practice so common, of applying irritating applications, such as soap and sugar, shoemakers' wax, honey, etc., for the purpose of breaking the abscess, should never be indulged in. If the matter is not discharged naturally, when pointing and fluctuation indicate that the abscess is fully formed, resort must be had to the lancet, but as this can only be safely done by one possessed of anatomical knowledge, the unprofessional should content themselves with simply palliative measures, and at the proper time seek the aid of a physician.

2. SCROFULOUS ABSCESS.—It is often called a chronic abscess on account of its tardy development, and the term cold is frequently used to designate it on account of the absence of inflammatory symptoms. It is never met with except in the scrofulous constitution. Weeks and months sometimes elapse before it acquires any considerable bulk. There is neither heat nor redness of skin, the surface being cold and blanched, and feeling and looking as if there were great deficiency in the circulation. Pain is almost entirely absent. The general health slowly and almost imperceptibly declines, the countenance becomes pale and sallow, and there is an entire absence of those inflammatory symptoms which

mark the former variety. On account of its passive character, its presence is frequently overlooked until great mischief has been done. The matter of the scrofulous abscess is generally of a whitish or yellowish cast, slightly inclining to greenish; of the consistence of thin syrup, and intermixed with particles very much like pieces of soft boiled rice.

Treatment.—The treatment is essentially different from that of the former variety. The system does not tolerate energetic interference. When the quantity of matter is small, its removal is frequently effected by absorption, aided by internal and external remedies. The following prescription may advantageously be used under such circumstances:

Take of Iodide of potassium.....One dram.
 Infusion of colomboOne pint.—*Mix.*

A tablespoonful to be taken four times during the twenty-four hours. When general debility exists, use the following combination:

Take of Sulphate of quinine.....Twenty grains.
 Tincture of ironHalf an ounce.
 Pure waterHalf a pint.—*Mix.*

A large tablespoonful before each meal and at bed-time. Or the following:

Take of Citrate of Iron and quinine.One dram.
 Pure water.Half a pint.—*Mix.*

A large tablespoonful before each meal. At the same time the following may be applied locally, with a feather or a camel's hair brush, twice a day:

Tincture of iodine.
 Rectified spirits.
 Of each one ounce.—*Mix.*

The evacuation of the purulent matter at the proper time, is of great importance, but caution is necessary, lest air be introduced into the cavity, a circumstance likely to be followed by the most disastrous consequences. After the abscess has been opened, the best local applications are emollient poultices, and when the matter has thoroughly drained out, tincture of iodine, gum ammonia, soap, compound galbanum, or iodine plaster, care being taken always to leave an opening for the discharge of matter. Whatever mode of treatment is adopted, care must be taken to sustain the system by tonics, and to allay pain by anodynes.

3. MULTIPLE ABSCESS. (See PYEMIA).

Cause.—The causes are numerous and diversified. Loss of blood, depression of the vital powers, and all such as are productive of great shock to the system. It supervenes upon severe injuries, especially of the head, compound fractures of the larger limbs, gunshot wounds and capital operations. It frequently follows severe cases of erysipelas, car-

buncle, small-pox, typhus fever and scarlatina. Lying-in females are particularly obnoxious to attacks of this form of abscess. No period of life is exempt from it. It has been known to attack infants a few weeks old. Wounds of the large veins, or operations involving this class of blood-vessels, are very apt to be followed by abscess of this form. Impure air, unwholesome food and imperfect drainage are fruitful causes of this disorder.

Symptoms.—The patient is restless and ill at ease, face pale and sallow, impaired appetite, deranged secretions, cheek flushed, pulse irritable and frequent, violent chills, lasting from fifteen minutes to two hours, and followed first by violent reaction and then by profuse sweats. The tongue is dry and clammy, thirst urgent, bowels irregular, stomach very irritable, urine high-colored and scanty, extremities cold, and as the disease advances the symptoms all assume more or less of a typhoid character, death frequently supervening at the expiration of a week or ten days. As many as one hundred of these multiple abscesses have been found in one individual after death. The matter found in them is generally of a dirty grayish or drab color, in old cases mixed with dark blood and flakes of fibrin.

Treatment.—The first indication is, as far as possible, to remove the exciting cause; the second, to support the system so as to enable it to throw off the poisonous influence. The first indication may be fulfilled, in part, by paying great attention to the dressing and the position of the part, the former being changed almost incessantly, and the latter arranged so as to favor the escape of the secretions. Lotions containing chlorinate of lime and carbolic acid, diluted so as not to irritate, are serviceable, and the dressings should be sprinkled with chloride of lime in quantities sufficient to allay fetor, while the air in the apartment should be frequently renewed by opening the doors and windows. The second indication may be accomplished by the use of tonics and stimulants: wine, brandy, ammonia, quinine and iron, with concentrated animal broths persistently administered at short intervals. Pain must be allayed and sleep induced by strong opiates; morphia in full doses being the best form for administration in these cases. The recurrence of the chills may be best combated by strong doses of quinine. The following may be advantageously given:

Take of Sulphate of quinine	Two drams.
Dilute sulphuric acid.....	Two drams.
Pure water.....	Half a pint.— <i>Mix.</i>

A large tablespoonful to be given every four hours. The irritability of the stomach may be controlled by mustard blisters externally, and the internal administration of ice and aromatic spirit of ammonia in dram

doses every two or three hours. Throughout the whole case the utmost attention must be paid to cleanliness; the bed-clothes and the patient's garments should be frequently changed, his body sponged with salt and water, and the apartment be kept thoroughly ventilated. Under the most favorable circumstances the complete recovery will be exceedingly tardy, and the greatest care must be exercised in regard to subsequent exposure or irregularity of diet for a long period of time.

ABSCISSION, *ab-sizh'-un* [Lat. *abscindo*, to cut off], the cutting away of some superfluous part. The premature termination of a disease.

ABSINTHE, *ab-sin'-the* [Gr. *a*, without, and *psinthos*, pleasure], the name given to an intoxicating drink much used in France, Algiers, etc. It is made by infusing in concentrated alcohol the ends of wormwood (*somnutes d'absinthe*)—from which the liquor takes its name—angelica root, aniseed, calamus, dittany seeds, and common marjoram. The color is improved by the addition of indigo, turmeric, juice of hyssop and nettles. The consumption of this pernicious, pale-green liquid, has increased to an enormous extent in France of late years. (See ABSINTHISM.)

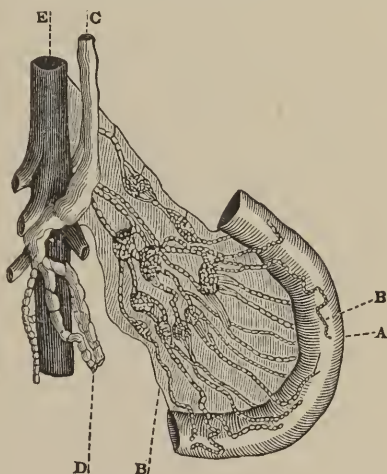
ABSINTHINE, *ab-sin'-thene* [Gr. *a*, without, and *psinthos*, pleasure], the bitter principle of wormwood, which, when pure, occurs as a yellowish powder, slightly soluble in water, very soluble in alcohol, and less so in ether. It is used sometimes as a stomachic in dyspepsia, and as a remedy against worms.

ABSINTHISM, *ab'-sin'-thizm*, this name is given to the effect produced by the continued use of absinthe. The first effect is a species of cerebral excitement, which is said to be rather agreeable. The intoxication comes on rapidly; the head swims, and the experience is much the same as by poisoning with a narcotic. The excitement the liquor produces diminishes daily in intensity, and each day an augmentation of the dose is necessary. (See ABSINTHE.)

ABSINTHIUM. (See ARTEMISIA, SANTONINE.)

ABSORBENTS, *ab-sorb'-ents* [Lat. *absorbeo*, I suck up], a term used in Anatomy to designate small vessels which imbibe fluids that come in contact with them, and carry them into the blood. They are called lacteals, or lymphatics, according to the nature of the fluid they convey. The lacteal absorbents take up the nutritive portion of the food named chyle, and uniting in one common trunk which ascends in front of the spine, pour it into the large veins going directly to the heart. The chyle, before being taken up by the lacteals, has to pass through a set of vessels called mesenteric glands, and as the health and vigor of the body depends upon the purity of the blood, it is of the utmost importance that these organs be maintained in a state of perfect health. These

glands are the seat of frequent disorders in children. (See *TABES*.) The lymphatic absorbents are distributed throughout the whole body, and take up and convey into the general circulation, whatever nutrient matter is fit to re-enter the blood. They also pass through glands, many of which are observable on the sides of the neck, in the armpits, and on the inside of the thighs. The enlargement of these glands is what is popularly known as "waxen kernels." The lymphatic glands are very apt to become inflamed, and sometimes suppurate, especially in persons of a weak constitution, or when there happens to be a sore on a part of the body more distant from the heart than the gland. When any irritation is visible in any of these glands, a thorough search should be made over the whole body, for any scratch or small sore which may be the cause of the trouble, for it would be evidently useless to be treating the effect while the cause remained untouched. When found, if the existing sore be treated with rest, fomentations, soft poultices, and some simple, laxative medicine be given, a seidlitz powder, or a dose of epsom salts, the irritated gland will generally resume its healthy condition. If the gland continue inflamed, it must be soothed by the same means. Suppuration in the neck ought, if possible, to be avoided, as it is likely to leave an unsightly eschar. When matter, however, has formed there, the after-traces will be much less visible, if the abscess be opened at the



THE ABSORBENTS.

- | | |
|---------------------|----------------|
| A, Small Intestine. | B, Lacteal, |
| C, Thoracic Duct, | D, Absorbents. |
| E, Blood-vessel. | |

proper time by a surgeon. The lymphatics are apt to assume a state of chronic enlargement and slow suppuration, and as the root of this trouble is found in a debilitated constitution, every effort must be made to invigorate the system. This can best be accomplished by nourishing animal diet, by early hours, regular exercise, and change of air. Cod liver oil is useful in these cases, and may be rubbed over the enlarged glands as well as taken internally. The syrup of the iodide of iron in doses of 20 drops, gradually increased to 40, three times a day before meals, is an excellent preparation, while tonic medicines generally are all indicated.

In *Medicine*, substances used to absorb or neutralize the acids

formed in the stomach; chalk and magnesia, for example, are called absorbents, and in *Surgery*, the same term is used to designate certain spongy substances used in dressing wounds, such as lint and amadou. (See AMADOU.)

ABSORPTION, *ab-sorp'shun*, a term used in *Physiology* to denote the natural function of the body, which is exercised by the absorbent vessels. Absorption is not performed by the lacteals and lymphatics alone—the blood-vessels take up a large quantity, particularly in the case of liquids. It may also take place through the skin; and in this way, persons unable through disease or accident to swallow liquids, may have their distress partly relieved by tepid baths.

In *Chemistry*, the disappearance of a gaseous body on entering into combination with a fluid or a solid is called absorption. For example, when ammoniacal gas is put into water, absorption takes place, and the result is liquid hartshorn.

ABSTINENCE *ab'-ste-nense* [Lat. *abstineo*, I abstain]. Abstinence is the act or habit of abstaining from something to which we have a propensity, or in which we obtain pleasure; but it is more particularly applied to the privation, or sparing use of food. It has been enjoined and practiced for various objects, namely: sanitary, moral and religious. Physicians relate remarkable cures effected by abstinence. The Pythagoreans, Stoics and others, recommended it as a means of bringing the animal part of our nature into greater subservience to the spiritual. Abstinence is likewise enjoined by various religious sects. Abstinence may be a great good, or on the other hand it may be a great evil. With those who live freely, eat much animal food, and drink wine and malt liquors, the remedy is excellent, either in their peculiar ailments, or in general sickness. If the constitution be tolerably sound, nature will set herself right if unopposed. A dose of medicine may very often be omitted when such patients can be persuaded to *starve*. More persons hurt themselves by excess than by the opposite, but not a few sustain much injury by too much abstinence. The latter are generally persons of weak digestive powers who, finding the less they give the stomach to do the better they feel, run into extreme, and consume barely enough aliment to support health, and the general system suffers; the stomach, liver, bowels, blood and circulating system are not sufficiently supplied with stimulus, and consequently act and react on one another; the general tone is generally lowered, and organic disease may be originated. This error has been fostered by medical authorities, and the case of Cornaro and others held up as examples of the health and longevity to be attained by extreme abstinence. Undoubtedly some men will retain health and strength on much less nutriment than others, but still, for

most men, a tolerably liberal supply of varied food is essential, and they cannot materially lower the standard permanently without injury. Living moderately, instead of stinting the whole body to favor the stomach, they ought, by exercise, relaxation and other means—by medicine if requisite—so to strengthen the organ that it may comfortably digest sufficient for the wants and support of the whole body. By acting on the reverse, nothing is gained eventually, for the stomach, participating in the general debility, becomes daily more unfit to perform its functions. The effect of abstinence on those who practice it on religious grounds is too often most injurious, and lays the foundation of organic disease of the stomach.

In the event of persons having suffered from long abstinence, nourishment should be administered cautiously, and in very small quantities at a time, but frequently. At first it should be mild and farinaceous, with soups, and the heat of the body should be promoted at the same time by friction and other means. In the beginning of febrile and inflammatory diseases, abstinence from solid or very nutritious food is absolutely necessary. (See CORPULENCE, DEBILITY, DIGESTION, FOOD, REGIMEN.)

ACACIA, *a-ka'she-a*, in Bot., a genus of plants belonging to the natural order *Leguminosæ*, sub-order *Mimoseæ*. The *Acacia vera* yields gum arabic; and the inner wood of the *A. Catechu*, an Indian shrub, affords a kind of catechu, or cutch, rich in tannin, which is used for tanning, and, in medicine, as an astringent. (See GUM ARABIC, CATECHU.)

ACARUS, *ak'-arus* [Gr. *akari*, a mite], the tick or louse, a genus of insects of the order *Aptera* or wingless. It contains various species, as the domestic mite, the itch mite (*Acarus Scabiei*), the harvest bug, the sugar mite, the red spider, etc. The bite of the harvest bug produces considerable inflammation and swelling of the part, with much itching. It may show itself upon the head or body during sickness, notwithstanding the most scrupulous care, and some kinds of cutaneous eruptions and sores are with great difficulty freed from it. Washing and cleanliness are the great counter agents; after washing, equal parts of sal volatile and water may be used to the part, or a solution of the aromatic spirit of ammonia will afford relief. The itch insect is an acarus, also the harvest bug. (See ITCH.)

ACCIDENTS, *ak'-se-dents*. What are commonly called accidents, such as drowning, suffocation, poisoning, fractures, dislocations, wounds, cuts, falls, burns, etc., are all described under their respective heads, and here it is only necessary to give certain general directions, which in all cases it is well to be acquainted with. An accident almost invariably attracts a crowd. The first thing to be done is to disperse it. A half a dozen persons are generally sufficient for the relief of the injured individual,

and the kindest thing the crowd can do, is to remove at least fifteen or twenty feet away. If any more assistance is required, it can easily be secured from the bystanders. It is well for others to be within call, to run messages, summon friends, and procure means for conveying the patient home or to the hospital. If, in consequence of the accident, the nervous shock should be so great as to occasion fainting, the person should be immediately placed on his back with the limbs extended, and the head and shoulders slightly raised. The collar or cravat, or anything else that is tight around the patient, and interferes with the circulation of the blood or the respiratory movements of the chest, should be at once loosened or removed. If the accident be only slight, a draught of cold water, a teaspoonful of brandy and water, or twenty or thirty drops of aromatic spirit of ammonia in a tablespoonful of cold water, given every two or three minutes, will generally suffice to bring about reaction.

The proper disposal of the sick-room for the reception of accidents, as soon as possible after their occurrence, is of great consequence, so that the patient may at once be placed under circumstances the best adapted for his recovery, and the least likely to cause him pain or inconvenience.

Let us suppose the case of a shattered or fractured limb. The accident will probably have occurred at some distance from the house, and the patient will have been brought along on a litter, or in some conveyance, in such a position as to rest as much as possible the wounded part. If the hand be shattered, or the arm, it is generally best to bend the elbow at right angles, so as to relax the muscles, to support it in a broad sling and lay it across the chest. If the leg be the part injured, it should be bent or flexed at the knee joint, also to relax the muscles, and laid upon its outer side (if this position be not incompatible with the state and condition of the injured parts). It may be laid upon a board, or a tray, or a pillow, or anything that will support it and can be easily moved along with the limb; as, for instance, in removing a patient by means of a carriage, or by railway, from the scene of accident. Bleeding seldom occurs in shattered or fractured limbs to such an extent as to endanger life, simply from the fact, that the blood-vessels are torn instead of cut through, so that the application of cold, or the mere exposure of the wound to the air, will generally suffice to arrest the hemorrhage. Failing this a tourniquet must be applied over the main blood-vessel, or a handkerchief, or bandage may be passed round the limb, and tightened by means of a stick twisted into it. The effect of this will be greatly increased by placing firmly a pad under the bandage over the situation of the leading blood-vessel, if that is known or can be felt beating by the fingers. A bleeding limb should always be held as high as possible.

The bleeding part rather exposed to the air than covered with a number of cloths, as is the popular custom. If cold is applied, it should be by means of a single cloth, which may be either frequently renewed, or a gentle stream of cold water may be kept playing upon the wound. These precautions, as to bleeding, will be much more necessary in the case of incised wounds where the cut ends of the blood-vessels bleed with great activity. It is to be remembered as a golden rule, that almost all bleeding, even of the most urgent kind, can be checked for a time, or, at all events, till the arrival of the medical man, by direct pressure applied to the part, either by the fingers, or by a pad of lint, or a dry sponge.

Another rule is always to keep a limb which is broken, in a natural, easy, or relaxed position, otherwise, from the action of the muscles, the ends of fractured bones may be forced with violence through the skin, or may injure blood-vessels, and may convert what was a tolerably simple into a very severe injury. Should severe shock and depression of the system supervene after an accident, wine and water, or brandy and water, may be freely given at once, and if there are any symptoms of coldness of the extremities and shivering, warm bottles, heated blankets, hot bricks, or bags of hot salt, should be applied.

Let us suppose, now, that the patient has been carried from the scene of accident to his own house, or to the room where he is to be laid up. The first thing to be done is to choose a good room, according to the principles laid down in the beginning of this article; a well-ventilated, and well-managed sick-room being quite as essential to the healing of a wound as to recovery from sickness. In case an operation should be required, a room should be chosen with a good light, or if artificial light is required, several good lights should be provided, and the bed so disposed that it can be easily got at and easily lighted up. The next thing to be done is to arrange the bed properly, and in doing this, reference should be had as to whether it is the right or left limb that is injured and that requires to be treated. If the patient is suffering much from the shock, or from cold, the bed should be warmed. A macintosh, or piece of water-proof material should be arranged under the wound, so as to protect the bedding from blood and discharge, and when it is desired to irrigate a wound, the macintosh should be large, and so disposed as to allow the current of water to escape over the bed into a vessel placed for the purpose of receiving it. Everything now being in readiness, the patient is to be got into bed, and in getting him in it will be necessary to remove his clothes, an operation giving great pain to the patient unless properly conducted. They should be slit up the seams and cut off where necessary, so that the wound may not in any way be dragged upon, and in this manner they may be removed, as it were, in one piece, even when

there are the most painful and extensive injuries, without any pain or inconvenience. While all this is being done, it should be the duty of one person to attend to and hold the injured part, and to support it in a relaxed position, which is one of ease to the patient. When all the clothes are removed, a night-shirt may be put on; and if it be the arm that is injured, the corresponding arm and shoulder-piece of the night-shirt may be slit open. The patient is then to be placed in bed, and the limb, being still held by the person in charge, deposited safely on a pillow, or otherwise, in the required position. Some loose tow or cotton wool may be placed around it, to absorb the blood if there be any, and care must be taken to prevent the weight of the bed-clothes from pressing upon it, either by means of a "cradle," by pillows, or by supporting the bed-clothes in any other way. The wound must be looked at every now and then till the arrival of the medical man, in order to ascertain if there is any bleeding; and if there is much shock or faintness from previous loss of blood, stimulants must be freely administered.

In cases of injury to the head, or of suspected fracture of the cranium, the patient may be quite insensible, and consequently such patients are often much tumbled about by those who remove them and who put them to bed; but the most serious accidents have resulted from want of care in this respect, and it has happened that bleeding inside of the skull, which had been temporarily arrested, has been made to burst out afresh, with a fatal result, owing to nothing more than rough handling. Wounded parts which are very painful and uncomfortable in any position, may be placed upon a water pillow, the yielding and undulating surface of which readily accommodates itself to them, and does away with the effects of pressure. (See ASPHYXIA, BITES AND STINGS, BURNS AND SCALDS, BRUISES AND CONTUSIONS, CUT-THROAT, CONCUSSION, CONCUSSION OF THE BRAIN, CHOKING, DISLOCATIONS, DROWNING, FALLS, FROST BITES, FOREIGN BODIES IN AIR PASSAGES, FRACTURES, HANGING, HEMORRHAGE OR BLEEDING, POISONS AND THEIR ANTIDOTES, SUNSTROKES, SUFFOCATION, WOUNDS, ETC.)

ACCLIMATIZATION, *ak-kli-mat-e-za'-shun*. Acclimatization consists in a change in the physical organism, produced by a prolonged sojourn in a place whose climate is widely different from that to which one is accustomed, and which has the effect of rendering the individual who has been subjected to it similar in many respects to the natives of the country which he has adopted. The process takes place to a certain extent so far as some individuals are concerned, but the ability to become acclimated is not possessed to the same extent by all nations. Every race of mankind appears to have its prescribed salubrious limits, and whenever they emigrate many lines above or below these, they begin to deteriorate. The white race appear to reach their highest

physical and intellectual vigor above 40° in the western, and 45° in the eastern hemisphere. There is a certain pliancy of constitution which enables all races to endure more or less changes of temperature with impunity; and it is a fact that those races which are indigenous to warm climates, support best the extremes of other latitudes. The Esquimaux cannot well bear transplanting to equatorial regions nor the negro or Malay to the latitude of Greenland or Kamtschatka. The Englishman placed in Bengal or Jamaica, though he may suffer from no acute disease, and may live to a good old age, ceases to be the plump, plethoric, healthy individual he once was, and his descendants are certain to degenerate. The European in the Antilles becomes prematurely old; he is constantly a prey to fever and dysentery, and after a continual struggle for existence he perishes. Statistics show beyond doubt that certain races cannot become acclimated in certain realms, though they may in others, at equal distance from their original homes. Climatic influences are combated most successfully by individuals adapting themselves to new conditions, carefully regulating their mode of life, manners and customs, so as to suit the climate in which they live. Food, clothing and habits are particularly to be attended to.

The air and its temperature are largely concerned in the process of acclimation; the former is so much more rarefied in hot than in cold climates, that in the vital process of respiration, a comparatively much smaller quantity is habitually consumed; less oxygen is taken in, and the process of oxidation or combustion, which is continually going on within the body, is slower; we reasonably conclude, that by this process of combustion, the animal heat, in part at least, is maintained, but, of course, in a hot climate, a less active condition is sufficient to keep up the average temperature. The process of oxidation or combustion effected on the one hand by the oxygen inspired, is supported on the other by some of the elements—carbon and hydrogen—of the food. It is evident, therefore, that if an individual who has become resident in a hot climate, makes a practice of consuming as much nutriment as he used to do, without injury to health in a cold one, he must take more than is requisite, consequently the blood becomes overcharged with a load of noxious matter, which the rarefied air and inactive habits of warm countries do not tend to remove; and if the course be continued, an attack of illness, probably of a biliary nature, is the consequence. Even in temperate climates, the difference between the consumption of oxygen in winter and summer is considerable. In Germany it has been calculated at one-eighth less in the latter. How great must be the difference to those who permanently settle in tropical heats! certainly, sufficient to require much alteration in habits of living. The abundant

animal diet, the fats and alcoholic drinks of the colder climes, all of which contain carbon and hydrogen in abundance, and assist materially to sustain temperature, must give place to the farinaceous and watery fruits of warmer regions, *vice versa*, on going from a warm or temperate country to a colder—as the experience of all arctic travelers testifies—a larger proportion of animal diet, and that of a more fat or oily character, is requisite to maintain health and strength, and those only who are capable of consuming and digesting this full allowance, are fit for encountering the cold of the north. From what has been said, it is evident, how important due regulation of the food is to safe and speedy acclimation; it is the main element, and the one most under man's control. Modern science and discovery will render him much assistance, but study of the natural products of the soil, and of native habits, is essential.

The great increase of the functions of the skin, which takes place on removal to a warm climate, requires attention; it renders the constitution more susceptible to the influences of a damp or chill air, such as frequently occurs in evening. The above remarks apply to our own climate in summer. The best preservative is woollen clothing of some kind, be it ever so thin, worn next the skin. Persons who from a warm climate, of which they are either natives, or to which they have become accustomed, come to reside in a variable or cold country, are peculiarly liable to affections of the chest or lungs, and not unfrequently become the subjects of consumption. The gipsies are a remarkable example of a race capable of enduring almost all varieties of climate, and the Chinaman also appears to be highly favored in this respect. The principal difficulty to be met with in all attempts at acclimatization is the persistent, pernicious influence of marsh malaria. This chronic and enduring influence of marsh malaria finds abundant illustration among the people who inhabit certain insalubrious localities in Italy. "We do not live," said a miserable inhabitant of the Pontine Marshes to a stranger, astonished that existence could go on in so unhealthy a region, "we do not live—we die!" The study of climatology is of the greatest importance to the physician, as well as to the invalid seeking to restore an exhausted system by change of air. There can be no acclimatization to causes of disease, and it is an admitted fact that climate has often been made the scape-goat for the neglect of sanitary precautions. (See AIR, RESPIRATION, DIET, CLIMATE.)

ACCOUCHEMENT. (See PARTURITION.)

ACCOUCHEUR, *ak-ko-shur'*, the French term for midwife; the physician who attends and assists during the process of child-birth.

ACEPHALOUS, *a-sef'-a-lus*, a term applied to a monster born without a head.

ACETABULUM, *as-e-tab'-u-lum*, in Anatomy, is the term applied to that deep, cup-like cavity of the os innominatum, which receives the head of the femur, or thigh bone, thus forming the hip joint. (See PELVIS.)

ACETATE, *as'-e-tate* (Lat. *acetum*, vinegar.) A salt of the acetic acid. Acetates are characterized by the pungent smell of vinegar, which they exhale on the addition of sulphuric acid; by yielding, on distillation, in a moderate red heat, a very light, odorous and combustible liquor, called pyroacetic spirit, or acetone; by being all soluble in water, many of them so much so, as to be uncrystallizable. The acetates commonly employed in the cure of diseases are the acetates of POTASH, AMMONIA, SODA, LEAD, ZINC, MERCURY, MORPHIA.

ACETATE OF LEAD is a powerful astringent, useful in severe diarrhœa and dysentery, as the lead or opium pills, of which one or two may be given two or three times daily: useful also in spitting of blood, and in loss of blood from other parts. Dose, 2 to 4 grains twice or thrice daily.

ACETATE OF POTASH is a diuretic and laxative, specially useful in acute rheumatism. Dose, from 20 to 60 grains for adults; 10 to 15 for children; may be given repeatedly at intervals of some hours.

ACETATE OF ZINC. It is astringent, and is chiefly used in injections and collyria. It is not often used as an internal remedy, though sometimes recommended in typhoid fevers, conjoined with stimulants, tonics or anti-spasmodics, as the case may demand. When astringents are necessary to restore the mucous secretions to their normal state, particularly in gonorrhœa and ophthalmia, the acetate of zinc is an important agent. One or two grains dissolved in an ounce of rose water, or an ounce of the mucilage of sassafras made with rose water, makes a very good collyrium or wash for the eyes. Dose, as a tonic or anti-spasmodic, 1 to 2 grains; as an emetic, 10 to 20 grains.

ACETIC ACID, *a-set'-ik*, in Chemistry, is produced by the oxidation or destructive distillation of organic bodies containing its elements, carbon, hydrogen and oxygen. When pure, it is a colorless liquid of specific gravity 1,065, which crystallizes at a temperature below 60° F. It has a pungent smell, and is highly corrosive. Vinegar and pyroligneous acid are impure varieties of acetic acid. All liquids susceptible of the vinous fermentation are capable of yielding vinegar. Of these, the most important is wine, which becomes vinegar by spontaneous acidification. The chemical composition of acetic acid is repre-

sented by the symbol $C_4H_3O_3 + HO$. In Medicine it is used externally as a local irritant, and when diluted with water it forms an excellent cooling lotion. It is also useful as a gargle; and the vapor, when inhaled, is beneficial in various affections of the throat. Diluted acetic acid is formed by mixing one part of the acid with seven parts of distilled water. It is used internally as a cooling acidulous drink in cases of fever. Dose, from 1 to 2 teaspoonfuls in this diluted form. It is sometimes taken to reduce corpulence, but this is not to be recommended, as it tends to injure the stomach, and may be productive of very serious results.

ACETOSELLA. (See OXALIC ACID.)

ACETUM. (See VINEGAR.)

ACHILLEA MILLEFOLIUM. (See YARROW.)

ACHILLES, TENDON, *a-kil'-lees ten'don* [Lat. *tendo Achilles*], in Anatomy, a tendon which connects the soleus and gastrocnemius muscles of the calf of the leg with the bone of the heel. It takes its name from the fable of the mother of Achilles dipping him in the river Styx to render him invulnerable. During this operation she held him by the heel, and here he subsequently received his death-wound.

ACIDITY OF THE STOMACH, *a-sid'-e-te*. This is not, strictly speaking, a disease, but simply one of the numerous symptoms of that hydra-headed monster, dyspepsia. It is characterized by a disagreeable sensation in the stomach, and the discharge of sour gas or liquids upwards.

Causes.—Improper diet, more especially pickles, pastry, butter, fish and certain kinds of vegetables, particularly cabbage. Constipation is also a frequent cause of this unpleasant symptom.

Treatment.—Those medicines known as absorbents are to be used, which, acting chemically on the excess of acid in the stomach, form harmless salts. The following prescriptions will be found very useful:

Take of Carbonate of ammonia.....Five grains.

Peppermint water.....One ounce.—*Mix.*

Take every three or four hours until relieved.

Take of Aromatic spirit of ammonia.....Thirty drops.

Simple syrup.....A teaspoonful.—*Mix.*

Repeat every two or three hours if necessary.

Take of Calcined magnesia.....One dram.

Water of Ammonia.....One dram.

Spirit of cinnamon.....Three drams.

Pure water.....5½ ounces.—*Mix.*

Two or three tablespoonfuls after each meal, or when required. Lime water, in doses of one or two ounces after each meal, will be found very beneficial. These means, however, are only temporary.

Prevention.—Must be sought by carefully abstaining from those articles which tend to produce this condition, and by strengthening the stomach by tonics, and regulating the bowels by gentle aperients. When the stomach is weak and the appetite poor, the following may be used with much benefit :

Take of Solution of potash.....Twenty or thirty drops.

Infusion of calumba.....One ounce.—*Mix.*

Take half an hour before each meal. (See DIGESTION, DYSPEPSIA, BILIARY DISORDERS, BILIOUSNESS, FLATULENCE.

ACIDS, *as'idz* [Lat. *acidus*, sour], a numerous and important class of chemical bodies, which are distinguished by the property of combining with bases to form salts. They are generally sour to the taste; in most instances they have a great affinity for water, and are soluble in it; they redden nearly all the vegetable blues; they unite with metals or their oxides, alkalies and earths. It was long held that oxygen was contained in all the acids. This element does indeed enter into the composition of the greatest number; but it has been ascertained that in very many cases the acidifying principle is hydrogen. It has consequently been considered necessary to divide acids into *oxyacids*, formed by oxygen, and *hydracids*, formed by hydrogen. These, again, are subdivided into *anhydrous acids*, or acids without water, and *hydrated acids*, or acids containing water. According, however, to the latest researches of chemists, all acids are hydracids. The acids furnished by the mineral kingdom are termed *mineral acids*. *Metallic acids* are formed by the combination of oxygen and a metal; and *organic acids* are those which contain carbon, or are formed with organic substances. The two syllables *ous* and *ic* affixed to the names of acid compounds, indicate two different modifications; *ic* always denoting an acid which contains more oxygen than the acid whose name terminates in *ous*: for example, sulphuric acid has for its acidifying principle more oxygen than sulphurous acid. The most important of these chemical bodies are—among the mineral acids, sulphuric, sulphurous, nitric, phosphoric, arsenic, chromic, hydro-chloric, chloric, carbonic, boracic; among the organic acids, hydrocyanic, oxalic, acetic, malic, tartaric, benzoic, citric, carboic, salicylic, etc. (See EACH OF THESE WORDS.)

ACIDS, POISONOUS. (See POISONS.)

ACNE, *ak'-ne*, a disease of the follicles of the skin. It appears on the face, neck, back and shoulders, first as small, hard collections of matter, which open on the skin by blackish points. These black points are vulgarly called “grubs” or “worms in the skin.” They continue to appear and disappear in successive crops until mature age, unless removed by a course of treatment.

Causes.—Irregularity in the matter of diet, intemperance, impure blood, want of cleanliness, etc.

Treatment.—The frequent bathing of the parts affected with water, of the temperature of 88° or 90°, is of the very greatest importance. The patient should take plenty of exercise, avoid all kinds of stimulants, such as wine, spirit and coffee, restrict himself almost entirely to a milk diet, and in washing or bathing avoid all rubbing, using only a very soft towel for such purposes. Emollient applications, such as emulsion of bitter almonds, bran water or tepid milk, are very useful. As a general rule, all cathartic medicines are to be avoided. When the eruption is not removed by attention to these general rules, resort must be had to more active treatment. The following is an excellent mixture for internal use:

Take of Tincture of muriate of iron.....Two drams.
Sulphate of quinine.....One dram.
Pure waterEight ounces.—*Mix.*

Take a tablespoonful three times a day, half an hour before eating.

As a local application either of the following will be found effectual:

Take of Milk sulphur.....One dram.
Spirits of wine.....One ounce.—*Mix.*

Apply with a piece of soft flannel night and morning.

Take of Corrosive sublimate.....Twelve grains.
Sal ammoniac.....Thirty grains.
Cochineal.....One grain.
Rose waterSix ounces.—*Mix.*

Use in the same way with a piece of soft flannel. (See ACNE ROSACEA.)

ACNE ROSACEA, or that form of the disease most frequently met with in those who have indulged too freely in the pleasures of the table, is said to be quickly cured by the following draught, taken night and morning:

Take of Compound infusion of horse-radish..Two ounces.
Compound spirit of ammonia.....Ten minims.
Syrup of ginger.....One dram.—*Mix.*

A milky infusion of the fresh root to be used frequently to the parts affected. The use of vinegar by some individuals is invariably followed by an accession or increase of the eruption. (See ACNE.)

ACONITE, *ak'-o-nite*, in Botany, the poisonous plant familiarly known as monkshood, or wolfsbane. It is a virulent poison, but in the proper hands a valuable remedy. The most prominent symptoms of poisoning by monkshood, following irritation of the mouth and stomach, are general paralysis and loss of sensation. In such a case, medical assistance should at once be sought. In the interval, place the patient in a recumbent posture, applying friction over the head, and chafing the limbs. Vomiting must, if possible, be produced by the readiest emetic,

such as mustard, salt, or a feather down the throat. When vomiting has come on, or been induced, it should be encouraged by copious draughts of thin gruel or warm water, a little spirit or wine being added if the depression be extreme. The extremities in hot mustard and water, and large mustard plasters down the spine, will assist to rouse the nervous system. In this and in other cases in which the natural sensibility of the skin is impaired, care should be taken that the water is not used too hot, as the patient's feelings afford no guide in the matter. As aconite grows in almost every garden or shrubbery, it is advisable not to use any root about which there is any doubt, and so avoid a repetition of those tragedies which have been too frequent of late. Aconite is used medicinally in the treatment of rheumatism and rheumatic gout, and as a sedative of the heart's action, in inflammatory diseases, fever, etc. It is never to be prescribed but by a medical man. (See ACONITINE, ACONITUM).

ACONITINE, or ACONITIA, *a-kon'-e-tin*, in Chemistry, a powerful vegetable alkaloid, prepared from the root of the *Aconitum Napellus*. It is one of the most virulent of poisons, but, at the same time, a very valuable medicine. Externally applied, it produces on the skin a prickling sensation, which is followed by a peculiar numbness. An ointment containing aconitine is often used in cases of neuralgia. (See ACONITE and ACONITUM.)

ACONITUM, *a-kon-i'-tum*, *aconite*, in Botany, a genus of plants belonging to the natural order *Ranunculaceæ*, the Crowfoot or Buttercup family. Nearly all the species are poisonous; but when the extracts prepared from them are used in proper doses, their narcotic and diaphoretic effects prove highly beneficial. The flowers of many species are remarkable for their beauty, and resemble little helmets. The monkshood, *Aconitum Napellus*, is a native of Europe, and is cultivated as a garden plant for the sake of its handsome purple flowers. This species is the officinal plant of our Pharmacopœia, and the preparations from it are used in the treatment of neuralgia, acute rheumatism, and diseases of the heart.

PREPARATIONS.

Fluid extract leaves.....	Dose, two to four drops.
“ root	“ one to three drops.
Solid extract.....	“ quarter to one grain.
Pills, quarter grain	“ one to four.
“ half “	“ one to two.
“ one “	“ one to two.
Tincture of root	“ two drops.

Being a deadly poison, aconite should never be taken internally unless prescribed by a physician. (See ACONITINE and ACONITE.)

ACONITE LINIMENT.—Made by macerating 20 ounces of the powder and 1 ounce of gum camphor in 30 ounces of rectified spirit for seven days.

ANOTHER.—1 dram of tincture of aconite and 1 dram of chloroform, and 10 drams of soap and opium liniment—or, *Linimentum Opii* of British Pharmacopœia. These form effectual and safe liniments, as an external application only, in severe pain, sprains and bruises.

Although very unsafe as an internal remedy, in unprofessional hands, the tincture of aconite is perhaps the most powerful medicinal agent one possesses for immediately allaying neuralgic pain, for which use the above liniments to apply on the parts affected. We would repeat, that as aconite is a deadly poison, none of its preparations should be taken internally, except under the special directions of a physician.

ACORUS CALAMUS *ak-o-rus* (Gr. *a*, without, and *kore*, pupil of the eye], the sweet flag, a member of the natural order *Orontiaceæ*. This plant grows in watery places, and abounds in the margins of the rivers and small streams of Europe and America. It blossoms during the months of May and June. The thick creeping stem or rhizome, commonly called the root, is the valuable part of the plant; it is somewhat spongy, and powerfully aromatic, and has a bitterish taste. It is used by the rectifiers to improve the flavor of gin, and is also employed to give a peculiar taste and fragrance to certain kinds of beer.

In medicine, the sweet flag is sometimes used as an aromatic stimulant and a mild tonic. In ague or intermittent fevers it succeeds sometimes when quinine fails. Dose of powdered root, 10 to 20 grains. Dose of infusion—made by infusing 1 ounce of root in 12 ounces boiling water—1 to 2 ounces.

ACQUIRED DISEASES, *ak-kwird' diz-eez-es*, strictly speaking, all diseases which are not hereditary or born with the individual are acquired. The term, however, has come to be used in connection with those affections which result from the carelessness or improper exposure of the patient. A long train of disastrous consequences follow as the result of the improper use of alcoholic stimulants. Insanity, consumption, dyspepsia, cirrhosis, etc., are frequently acquired in this way. Syphilis and gonorrhœa, with all their terrible consequences, are acquired as the result of violating the seventh commandment. Phthisis is frequently acquired by rash exposure to cold while the pores of the skin are all open and the body bathed with perspiration. Many cutaneous and other diseases are acquired by carelessness in regard to the selection of a proper bed-fellow. The young should never be compelled or allowed to sleep with those very much advanced in years, neither should the

physically strong be permitted to sleep with the debilitated or diseased. Dyspepsia is almost invariably the result of indiscretions in eating or drinking. All those affections which might be avoided by a proper regard for the common-sense rules of every-day life, might fairly be classed under this head.

ACTEA RACEMOSA. (See BLACK COHOSH.)

ACTIVE, *ak'-tiv*, acting with energy; opposite to passive, as active hemorrhage, active aneurism, etc.

ACTUAL CAUTERY, *akt'-yu-al kaw'-te-re*, a term now restricted to the red-hot iron as a means of destroying morbid growths, arresting hemorrhage, and setting up counter irritation. (See MOXA.)

ACUPRESSURE, *ak-yu-presh'-ur*. In Surgery, is a method of arresting hemorrhage from cut arteries, recently introduced. It was first suggested by Sir J. Y. Simpson, and described by him in a communication to the Royal Society of Edinburgh in 1859. Since that time it has come into extensive use; and while there are many who speak of it in the highest terms, there are not a few who are still opposed to it. It consists simply in substituting for the old system of tying the arteries, the compressing of them by means of pins or needles and iron wire.

ACUPUNCTURE, *ak-yu-pungkt'-yur* [Lat. *acus*, a needle, and *punctura*, a puncture], a surgical operation practiced very extensively in the East, where it is performed by puncturing the part affected with a gold or silver needle. It has been practiced both in Paris and England with satisfactory results in different kinds of disease, principally neuralgic pains and chronic rheumatism. It has also been practiced in this country to some extent, and in some cases with marked success, especially in acute rheumatism. The needle, which is usually of steel, and from one to four or five inches long, with round or annular heads, is passed by a slight rotatory motion to the required depth, and allowed to remain from a few minutes to several hours. The needles are sometimes used as conductors of the galvanic currents to the deep-seated parts, and are sometimes made hollow in order to convey some sedative solution. From one to twenty may be inserted at a time, and allowed to remain from a few minutes to several hours. The distance to which they should penetrate should depend upon the nature and seat of the disease. The pain of the operation is very trifling, and such as none need shrink from.

ACUTE, *a-kute'*, is opposed to chronic, and is applied to diseases which are attended with violent symptoms, whose course is short, and usually terminate in a few days in relief, cure or death. For example, inflammation of the lungs and erysipelas are *acute* diseases; consumption and ringworm are *chronic*.

ACUTE BRONCHITIS. (See BRONCHITIS.)

ACUTE RHEUMATISM. (See RHEUMATISM.)

ADDER BITES. (See BITES and STINGS.)

ADDISON'S DISEASE, *ad'-dis-onz*, BRONZED SKIN OR DISEASE OF THE SUPRA RENAL CAPSULES, called after Dr. Thomas Addison, of London, who made it subject of special investigation several years ago. There is still a good deal of doubt as to the real causes of this disease.

Symptoms.—Great debility from the very outset; anemia, a peculiar pearly appearance of the white of the eye, and sooner or later a peculiar dusky bronzing of the skin, which appears most marked about the face and neck, the arm-pit, the genital organs and the navel. The discoloration presents itself in all degrees of intensity, from the slightest darkening to the swarthy hue of the mulatto.

Treatment.—This disease is almost always fatal, therefore the treatment is for the most part palliative. Absolute rest is of prime importance as well as nutritive diet and the constant avoidance of all causes of depression. When the stomach will not bear meats and soups, oysters, eggs and jellies should be given. Cod liver oil is of decided advantage when the stomach will tolerate it. Constipation is habitual, but great care has to be exercised, as fatal collapse often follows a dose of cathartic medicine. Temporary improvement frequently takes place under the use of the following mixture:

Take of Pure glycerine Two drams.

Tincture of iron and spirit of chloroform Twenty drops of each.—*Mix.*

Take three times a day.

ADDUCTOR MUSCLES, *ad-duk'-tur* [Lat. *adduco*, I draw towards], are those muscles which draw the parts to which they are attached together. They are opposed to the abductor muscles. (See ABDUCTOR MUSCLES.)

ADEPS. (See LARD.)

ADHESION, *ad-he'-zhun*, is the process by which parts, naturally separate, or separated by artificial means, become united. It is caused by the effusion of a lymph, or sticky fluid, produced by inflammation; and hence it is sometimes necessary to produce inflammation, by scraping or paring, in surfaces which it is desirable to unite. This tendency of inflamed surfaces to adhere when in contact is sometimes troublesome, as in inflammations of serous membranes. A common cut unites by adhesion, and when it does so at once, without the formation of matter, it is said to unite "by the first intention."

ADHESIVE PLASTER, *ad-he'-siv plas'-tur*, commonly called strapping-plaster, is used to protect raw surfaces, and for dressing cuts,

wounds, and ulcers. It is a gentle external stimulant, and assists the healing process. It is composed of lead-plaster (a mixture of oxide of lead and olive-oil) melted over a slow fire, with powdered resin and hard soap mixed with it in the proportion of sixteen parts of lead-plaster to two parts of powdered resin and one part of hard soap.

ANOTHER.—Three-fourths pound of diachylon, half an ounce of pounded yellow resin. Put these in a jar, and melt them by the side of the fire, or on the stove, stirring them continually. The plaster should be spread on narrow strips of new cotton cloth or washed leather, and one end of the strip, after being properly warmed, is pressed upon one side of the cut, sore, or wound, and after having brought the divided skin and flesh together, the other end or part of the strip is pressed hard upon the other side. In the same manner one, two, or more strips are laid on, with a little space between them, to allow the matter to escape, if any is formed. In most cases, it saves the pain and disfiguration of taking stitches, or sewing up cuts and wounds. (See WOUNDS, PLASTERS.)

ADIPOSE TISSUE, *ad-e-pose* [Lat. *adeps*, soft fat], is a peculiar tissue or membrane composed of an aggregation of minute cells filled with fat, which they appropriate from the blood. This tissue serves several important purposes in the animal body; filling up interstices, forming a pad or cushion for the support of the movable parts, and assisting in the retention of heat.

ADOLESCENCE, *ad-o-les-sense* [Lat. *adolesco*, to grow], youth; the period of life between puberty and the full development of the frame; extending, in man, from the age of 14 to 25, and in woman, from 12 to 21. (See AGE.)

ADULT AGE, *a-dult'*, manhood or womanhood. The period between youth and old age. In Medicine, a person is considered an adult who has fully arrived at maturity.

ADULTERATION OF FOOD, *a-dul-tur-a'-shun*. Some adulterations are positively *dangerous* and *poisonous*, as, for instance, the coloring of sweetmeats with arsenic or lead; others are merely and simply fraudulent, as the adulteration of flour with potato starch, of butter with salt and water, etc.; but we do not stop here, for even the articles used to adulterate are themselves in their turn adulterated, so that, when the knave, who has lent himself to the dishonest custom, trusts to escape detection by using a substance which is at all events, *as he supposes*, harmless, he finds to his surprise that he again has been duped, and that, perhaps, a poisonous substance has been used to drug the very article he had used as a counterfeit. In this way chicory, which was itself so much used as an adulteration of coffee, is adulterated with carrots, red earth

and molasses; and anatto, used to dye cheese of a rich color, has been adulterated with red lead, so as to cause fatal poisoning.

It cannot be too strongly impressed upon the public mind that to adulterate at all is in every way wrong, and that, willingly and knowingly, to add substances of a poisonous or deleterious nature for the sake of gain, is a crime of the deepest dye, for which all those guilty of it will have one day to answer!

It is manifestly of the greatest importance that the public should know and guard against adulterations of all kinds which are to be met with in the articles of our daily consumption, and that they should, to some extent, at all events, be acquainted with the nature of the substance used, whether it is injurious or not to life and health. Even our bread, "the staff of life," is adulterated to an enormous extent, sometimes with alum and carbonate of magnesia, which are added to improve its appearance when made from coarse or inferior flour, and sometimes with the meals or flours of other grains or vegetables, such as oats, barley, Indian corn, potatoes, beans, peas, rice, etc.

It is sad to think that the poor man, who buys his loaf of bread with the wages of a hard day's toil, is not only unable to get the worth of his money in the shape of pure, wholesome, nourishing food, but that he actually is forced, through these abominable "tricks of trade," to eat a substance containing deleterious or poisonous ingredients, such as by daily enfeebling his health, positively unfits him for the proper discharge of his daily duties.

There is little doubt that the bakers themselves are mainly to blame for the excessive adulteration of bread, flour being tampered with by the flour merchants only to the extent of mixing it with flours of inferior quality, or those which, having been exposed to damp, etc., are in a state of decomposition. Potato starch, alum, bone dust, and an Egyptian grain called Dari, have all been used as adulterations, and several kinds of alkalis have been found in flours, added no doubt to overcome the tendency to grow acid existing in flour which has been exposed to damp and moisture.

A great deal has been said about the adulteration of milk in large towns, and the pale, sky-blue mixture sold in cities has been said to consist of chalk and water, sheep's brains, and various other disgusting compounds. It may be said, for the comfort of those who are ever ready to believe in anything marvellous, that it is not the practice anywhere to put the brains of any animal whatever into milk, and that after all, almost the only adulteration we have to fear is plain water, which, unfortunately, can be added in large quantity without much marring its appearance.

This is without doubt the only serious adulteration, and a very serious one it is, because the importance of good milk as an article of diet for all, and specially for certain cases of disease, can scarcely be exaggerated, and even now medical men are becoming every day more alive to the advantages of a substance which, being of easy digestion, can so readily take the place, both of animal, and vegetable food, and has in itself, unlike any other substance whatever, all the elements requisite for the support of life. Our national scourges of scrofula and consumption, as well as all other debilitating diseases, would not be so common if we could obtain for the young children of the poor in our large towns an adequate supply of good and pure milk.

Of course, chalk is never used to adulterate milk or cream, because it would fall at once to the bottom of the vessel and be detected. Next to water, perhaps the most important adulteration is arrowroot, which is often mixed with milk or cream, to give it a thick or rich appearance. It is surprising what a small quantity of arrowroot will produce the effect, if skilfully mixed with it.

The adulteration of sugar may be disposed of in one word. The fact is, that *almost all brown sugars are, as a rule, unfit for human consumption*, and contain all manner of animal and vegetable impurities in greater or less quantity. The grand and simple test for sugar, then, is its color and appearance; and the only fraud practiced by the venders of it, is to mix up inferior with the better qualities. Lump sugar is the best and cheapest; and a good sugar must be of bright color, crystalline, and *dry*. The inferior brown sugars are mixed up to a great extent with water, mould-insects of several kinds, and dirt.

A very objectionable adulteration or fraud, inasmuch as it is practised upon an article often specially ordered for sick people or young children, consists in the substitution of potato starch for arrowroot. Dr. Hassall found twenty-two, out of fifty samples of arrowroot, to be adulterated; and ten of the twenty-two had scarcely a trace of genuine arrowroot in their composition. The prevailing, and almost the only adulteration, was potato starch.

One scarcely knows how to approach the subject of the adulteration of meat. We have heard with horror, in childhood days, of cats, kittens, and even articles still more objectionable, which have found their way, by some means or other, into the so-called mutton and beef-steak pie. A humorous writer, lately describing his experiences of the latter compound on a given occasion, says:—"Mean and degraded indeed must have been the spirit of the bullock that would confess to any share in such a production; in fact, I am convinced that the bovine element entered no more into its composition at all than the flesh of the unicorn into pease

porridge." A most pernicious custom exists of coloring potted meats with red earths—with one, in particular, called "bole Armenian;" so that it may be laid down as a general rule that potted meats, other than ham and tongue, having a red color, cannot be good. This bole Armenian is also largely used in the preparation or manufacture of counterfeit Anchovies (for real Anchovies are now almost unknown), and, like chicory, though itself an adulteration, does not escape being tampered with in its turn and is often mixed with red lead, an active and fatal poison.

Good, fresh, or sweet butter, is certainly one of the most important nutrient articles of diet we possess, and it is matter of regret that so much pains should be taken, to spoil and adulterate it by adding water and salt, to increase the weight. The butter is half melted, and then the salt and water are stirred up with it to about one-fifth of the whole weight. The most inferior qualities of butter, that are good for nothing else, are mixed up in this way, and are sold to the poor at a comparatively low price; but it may safely be said that it is the reverse of economy to purchase what is called salt butter, seeing that it is always inferior to fresh, and, in the worst cases at all events, it is simply a rancid butter, with perhaps 50 per cent. of salt and water.

Coffee, as is well known, is still, and was to an enormous extent adulterated with chicory, which is a much cheaper substance than the cheapest coffee. Other adulterations are unimportant, and are not often met with, though Dr. Hassall mentions roasted grains of all kinds—peas, beans, roasted carrots, and acorns, and even *mahogany sawdust*. The difference between coffee and chicory is very marked. A little of the former when put into a cup of water floats on the top, and imparts no color to the water, while the latter sinks to the bottom, and gives a deep red tint to the water. This is a very ready and convenient test which may be tried by any one at home.

Tea is most extensively adulterated, both in this country and in China, where they give it the appropriate name of "lie tea." Both black and green tea are liable to be tampered with; and an infinite number of substances are used as counterfeits, and also to give color and increased weight. Again, powders are made up and advertised (such as "The Chinese botanical powder," and "Veno bono" "possessing four times the strength of the best tea,") which are utterly worthless, and consist for the most part of wheat flour mixed up with catechu or with some earthy or coloring matter. The absurdity of coloring teas for the market is very great, and is only kept up by the ill-informed on such subjects giving a preference to teas that have a fine bloom. *The Chinese do not themselves drink* colored teas. The principal matters used for

“facing” the teas, as it is termed, are Prussian blue, graphite or black lead, gypsum, and turmeric. Various leaves are used to counterfeit the genuine tea, amongst which may be mentioned those of the sloe, the hawthorn, the beech, the plane, the horse-chestnut, the willow, and the elm. Sloe leaves are used whole, but the others are for the most part broken up and mixed with gum and some substance such as catechu, and rolled up into small masses. Coloring matters are added in the most reckless way, and a black or green tea readily produced at will. Some of these coloring matters are of a poisonous nature, but, for the most part, they are either innocent, or of such powerful coloring property, that only a very small quantity requires to be added. It is lamentable to think that there should be a distinct and separate trade in selling articles solely for the adulteration of tea, and there can be little room for doubt that until government can be induced to take measures to confiscate and destroy adulterated or “lie tea,” the practice, which is a very lucrative one, will increase, till it is impossible to obtain a pure tea at a reasonable price from the retail dealers. Numbers of persons are employed to collect the used-up tea leaves from hotels throughout the country, these are redried, mixed with a little gum, recurled, recolored and sold as green or as black tea.

The practical lesson to be derived from all this is, to deal only with respectable dealers, and to make such inquiries as are possible into the purity of all articles which are to be consumed in the household. Also, to beware, especially, of articles which are sold by second-rate dealers, at a cheaper rate than they can be bought pure in the market. (Refer to various articles of food. See FOOD, CONFECTIONERY, WINE.)

ADVICE, MEDICAL. (See MEDICAL ADVICE.)

ÆGLE MARMELOS, *e'-gel mar'-me-los*, Bael or Bengal quince. The fruit of a tree belonging to the natural order *Aurantiaceæ*, found in the East Indies. It is said to possess valuable properties in arresting diarrhoea, and acting as a mild aperient when constipation exists. A liquid extract of the half-dried fruit is the preparation used, in doses ranging from a teaspoonful to two tablespoonfuls. It is sometimes used as a marmalade prepared in the same way as orange marmalade.

ÆGOPHONY, *e-gof'-o-ne*, a peculiar sound observed in using the stethoscope, resembling the sound made by the goat.

AERATED BREAD. (See BREAD.)

AERATED WATERS, *a'-e-ra-ted* [Gr. *aer*, air]. This term is applied to drinks in which water is impregnated with gases by pressure. The best known of these is the so-called soda-water, which generally consists of plain water charged with carbonic acid gas. This is effected by submitting the water to carbonic acid under a pressure of 30 or 40

lbs. to the square inch, and bottling it off without any diminution of the pressure. On uncorking the bottle, the imprisoned gas is released, and taken into the stomach in the form of bubbles. Various mineral constituents, such as soda, potash, lithia, the salts of iron, and magnesia, are often introduced into the water with excellent medicinal effects. Aerated drinks, such as effervescing lemonade, are often impregnated with air only; but this is easily detected by the taste of the gas.

AERATION, *a-e-ra'-shun*. Blood, during its circulation through the body, becomes impure in quality, dark in color, and unfit for the support of the vital functions; being passed through the lungs by the powers of the heart, it undergoes purification, and the dark color of the venous is exchanged for the bright, red hue of the arterial fluid; it has undergone "aeration"—it has robbed the air drawn into the lungs of a portion of its oxygen, and given off carbonic acid. This aeration of the blood is essential to the maintenance of life; if stopped entirely, but for a few minutes, death is the result. This fact is obvious, and known to all; not so the injurious, ultimately fatal effects of the imperfect aeration of the blood, to which thousands of our town and city populations are daily and nightly exposed; living in a contaminated atmosphere, the vital fluid never fully purified, disease and shortened lives must be the result. (See **RESPIRATION**, **BLOOD**, **AIR**, **VENTILATION**, **OXYGEN**, **CARBONIC ACID**.)

ÆSCULUS, *ees'-ku-lus*, in Botany, the horse chestnut, a genus of the soapwort order, or *Sapindaceæ*. *Æsculus Hippocastanum*, the common horse chestnut, is the typical species. Its bark, which contains a peculiar principle called *Æsculin*, is febrifugal, and is occasionally used in medicine, while its young leaves are somewhat aromatic, and have been substituted for hops. In France, large quantities of starch are obtained from the seeds, which in England are considered worthless. The bark is tonic, astringent, febrifuge, narcotic, and antiseptic. In intermittent fever, or fever and ague, cures are said to have been effected by the bark in doses of a teaspoonful, four or six times a day. The oil of horse chestnuts has been considered a valuable local application in neuralgic and rheumatic affections.

ÆTHER. (See **ETHER**.)

ÆTHER CHLORIC. (See **CHLORIC ETHER**.)

ÆTHIOPS MINERAL, *e'-the-ops, min'-er-ql*. *Æthiops mineral* is a powder formed of sulphur and quicksilver ground together in a mortar. It is used in diseases of the skin, such as affect children in early infancy. It is also used in glandular disorders, such as scrofula and indurations of the glands. It is sometimes administered for worms. The dose for a child one or two years old, is 2 grains; for an adult, 8 to 10 grains. It

is less likely to salivate than any other mercurial preparation. It is black, and looks very much like powdered charcoal, and is often given mixed with syrup or molasses.

ÆTHUSA, *e-thu'-sa*, in Botany, a genus of umbelliferous plants. *Æthusa Cynapium*, fool's parsley, is a common indigenous plant, highly poisonous, which has been frequently mistaken for parsley.

AFFINITY (OR CHEMICAL ATTRACTION), *af-fin'-e-te* [Lat. *affinitas affinis*, bordering upon]. Affinity, or chemical attraction, is the force which causes the particles of dissimilar kinds of matter to combine together, so as to form new matter. This definition indicates the differences between affinity and cohesion, which is another modification of molecular attraction. Cohesion merely binds similar particles into a mass; affinity brings about the combination of heterogeneous particles, and causes them to lose their individual properties, and assume new forms. Chemical combinations do not take place indifferently, but in accordance with certain strict rules or laws. One substance will unite with another in preference to a third, or in some cases in preference to any other. This preference is denoted by the term elective affinity. By means of this discriminating action of affinity, some combinations may be decomposed. The attraction of one body for another is greatly modified by the circumstances under which the two bodies are brought together. Alteration of temperature is one of the causes which influence the force of chemical attraction. The discoveries of Faraday and others have established the fact, that whenever two substances unite to form a compound, they are in opposite electrical conditions; one being electro-negative, and the other electro-positive. This and other facts go to prove that chemical affinity is a particular modification of electrical attraction.

AFFUSION, *af-fu'-zhun*, the act of pouring water, or other fluids upon the surface of the body. It is employed in febrile diseases, more especially in typhus and scarlet fevers. Where it does not cure the disease, it makes the patient more comfortable. The patient may be placed in a tub or other convenient situation, and cold water poured upon him; after which he should be wiped dry with a coarse towel and put into bed. The cold affusion should be employed in the hot stage of the fever, and never when there is any chillness or depression of strength. Neither should it be employed when the body is under a profuse perspiration, nor when the fever is complicated with any visceral inflammation. Sponging the body in fevers is, in most cases preferable to affusion, although it fail to produce the same impression on the system. (See SPONGING, SCARLET FEVER, TYPHUS FEVER, BATHS, ETC.)

AFTER-BIRTH, *af'-tur-berth*, in medical language, the placenta. It

is usually discharged at a period varying from five to forty minutes after the birth of the child. There is always some little anxiety, both on the part of the patient, and of the medical attendant, until this concluding part of child-birth has been accomplished. Within the above time, in most cases, sometimes immediately after the child is born, the patient complains of an accession of labor pain, caused by the contraction of the womb, which casts off the after-birth; at times, expelling it entirely from the body, but generally propelling it so far towards the external orifice as to make its withdrawal perfectly easy. When all is as it should be, the business is concluded by the ordinary midwife without the least difficulty, at the same time, it must be remembered, that some of the most formidable accidents of the lying-in chamber are connected with the management of this part of its duties; and if a female only, be in attendance, should the slightest embarrassment occur, not one moment is to be lost in summoning proper medical aid; above all things, let the attendants beware of any attempt to force matters by pulling strongly at the navel cord—they can only do mischief. The chief danger to be dreaded when the after-birth is retained, is loss of blood or flooding; if this comes on to any extent, the patient must be kept as quiet and cool as possible, gentle but firm pressure must be maintained over the bowels generally, and especially over their lower portion by the bandage, and by the hand—cloths dipped in cold water are to be applied over the external parts and frequently changed; should extreme faintness occur, a little wine, or brandy, or sal volatile may be given in water, but stimulants must not be too readily resorted to. The retention of the after-birth is at times the result of irregular contraction, but often of adhesion to the womb; the possibility of such an occurrence should make those who are advanced in pregnancy careful to avoid anything which may press upon any portion of the distended womb, as for instance, the stays, and guard against habitually leaning, even gently, against any hard body. A careful attendant will always examine the after-birth: it ought to be nearly circular, about the size of a dinner plate, and should not exhibit any signs of tearing on the surface which is next the womb. The membranes which line the interior of the womb during pregnancy, are for the most part discharged along with the after-birth, and are more readily and neatly brought away, by giving the latter body a slightly twisting motion as it is withdrawn. If they are very tender, a portion may remain and pass off with the discharge; it is well to be aware of the fact, as persons are often needlessly much alarmed at this occurring a few hours or more after delivery. Occasionally, the after-birth is so placed over the mouth of the womb, that it must necessarily be detached in the first stages of labor; the case is always attended with danger,

and cannot be too soon put under medical superintendence; it may generally be suspected, if simultaneous with the occurrence of labor pains, a free discharge of blood takes place, which is increased every time the pain recurs. In the event, as in the country, of any delay in procuring medical assistance, the measures recommended in the treatment of hemorrhage in "Abortion" may be resorted to. (See CHILD-BED.)

AFTER-PAINS, *af'-tur-panez*. After-pains are the regularly recurring pains which women experience for a day or two after child-birth. They are rarely troublesome after a first confinement, but are apt to increase in severity at each succeeding one. After-pains are, in moderation, salutary, and are caused by the efforts of the womb to attain that properly contracted condition on which the woman's safety depends. If they are very severe, it is generally owing to the presence of clotted blood, which must be expelled before they moderate. A constant, unintermitting after-pain, coming on very soon after the termination of labor, is often symptomatic of internal flooding, and should be attended to accordingly. If after-pains are very severe, they are advantageously relieved by the administration of 20 drops of laudanum, which may be repeated, but if the amount of pains be moderate, this is unnecessary. If the discharge is not profuse, a hot flannel to the lower part of the abdomen affords comfort. After-pains are often kept up after the first four-and-twenty or six-and-thirty hours, by the bowels being loaded; a tablespoonful of castor-oil is at once a safe and effectual remedy. Too tight bandaging may aggravate after-pains. (See CHILD-BED.)

AGARICUS, *a-gar-e-kus* [Lat. *agaricum*], the generic name of mushrooms. A genus of fungi, with a cap, and gills underneath of a different substance from the cap. The genus comprehends an immense number of species, many of which are edible. They grow in wet and shady places in fields and woods, and on hotbeds prepared for their cultivation. The species of *Agaricus* commonly eaten in this country are *Agaricus compestris*, the common mushroom; *A. arvensis*, *A. Georgii*, and *A. oreades*. The last is the Champignon, which is highly esteemed for its savory qualities. Many genera of fungi allied to the one under consideration include edible species, which are used for food in this and other parts of the world. Dr. Badham enumerates no less than thirty fungi, natives of Britain, which are eaten by himself and his friends, and complains of the prejudice existing against several species which might form dainty and nutritious articles of food. However this may be, fatal cases of poisoning by fungi are not uncommon, and great care should be taken to ascertain whether a fungus is or is not poisonous, before introducing it into the market as a wholesome vegetable. There

are no certain characters by which the edible and poisonous species may always be distinguished; but there are some general characters which help us to separate the two groups. Professor Bentley has tabulated these general characters as follows:

Edible Mushrooms.

1. Grow solitary, in dry airy places.
2. Generally white or brownish.
3. Have a compact brittle flesh.
4. Do not change color, when cut, by the action of the air.
5. Juice watery.
6. Odor agreeable.
7. Taste not bitter, acrid, salt, or astringent.

Poisonous Mushrooms.

1. Grow in clusters, in woods and dark damp places.
2. Usually with bright colors.
3. Flesh tough, soft, and watery.
4. Acquire a brown, green, or blue tint, when cut and exposed to the air.
5. Juice often milky.
6. Odor commonly powerful and disagreeable.
7. Have an acrid, astringent, acid, salt, or bitter taste.

Professor Bentley suggests that we should avoid all fungi which insects will not touch, and those which have scales or spots on their surface; and, further, that whatever may be the apparent qualities of the fungi, we should use with caution all which have arrived at their full development, or when they exhibit any signs of change. By soaking doubtful fungi, cut into slices, for about an hour in vinegar, and afterwards washing them in boiling water, we get rid of any poisonous principles they may possess, and the process will not spoil them for the table. The purging agaricus is found growing on the larch tree in Asia, and in Russia, in Europe. The agaric found growing on the oak tree, has been used as a styptic. The *Boletus Fomentarius*, found growing on similar trees with the latter, when cut in slices, beaten, and soaked in a solution of nitre, and dried, forms an inflammable substance, known as German tinder or amadou. (See POISONS AND THEIR ANTIDOTES, AMADOU.)

AGAVE AMERICANA, *a-ga'-ve a-mer-e-ka'-na*, American aloë or century plant. The fresh juice is said to act upon the kidneys and bowels, and to promote menstruation. Some medical men prefer it to lime juice as a remedy in scurvy, giving it in doses as high as 2 ounces three times a day.

AGAVE VIRGINICA, *a-ga'-ve ver-jin'-e-ka*, false aloë, Nat. order. *Amaryllidaceæ*, a perennial, herbaceous plant, with a tuberous root,

found growing on dry or rocky banks in Pennsylvania and the Southern States. False aloe is reputed laxative and carminative, and has been beneficially employed in obstinate diarrhœa, flatulence and spasm of the intestines.

AGE, *āj* (Fr. *age*). In Physiology during the progress of life from infancy to manhood, and from manhood to old age, the body undergoes certain marked changes, which distinguish the different periods or stages of life. These are usually denominated ages, and are properly seven in number, though some make them fewer. They are—1. Infancy. 2. Childhood. 3. Boyhood or Girlhood. 4. Adolescence. 5. Manhood, Womanhood. 6. Age. 7. Old Age. The first age commences at birth, and extends to the end of the second year, by which time the first dentition is generally completed; the second extends to the end of the seventh or eighth year, when the second dentition is commonly over; the third extends to the age of puberty, which varies in different countries, but with us is from twelve to fourteen in the female, and from fourteen to sixteen in the male; the fourth extends to about the twentieth year in the female, and the twenty-fourth in the male; the fifth period extends in the female to about the forty-fifth, or fiftieth year, when the power of procreation usually ceases, and in the male to about the forty-ninth or fiftieth year; the sixth period extends to about the sixty-third year, when the seventh and last period of life commences. (See AGE, OLD.)

AGE, OLD. Although the powers of life may have shown symptoms of decline, the period of incipient old age is usually fixed, in women, about the fifty-third, and in men, about the sixtieth to sixty-third year. After this, it generally becomes evident that the vigor of prime is giving way, and that the powers of the constitution are no longer able to recruit themselves, or to sustain exertion with the same ease as formerly; diseases, too, peculiar to this stage of life, begin to show their symptoms of approach, symptoms which can scarcely be too soon detected, or too carefully watched. As time goes on, the individual becomes more dependent upon the affectionate care—and equally important—the intelligent supervision of those around. The subject of the treatment of the aged has been a neglected one. A valuable English work, by Dr. Day, has lately supplied the want of a special treatise upon it. With old age, increases the liability to such hereditary diseases as gout, gravel, rheumatism, apoplexy, and, in women especially, to cancer. Now, the effects of excesses and of dissipation in early life, which may have been unfelt during the vigor of manhood, too often add to the natural infirmities. Whatever may have been the previous modes of living, it is always a dangerous experiment to make any material or sudden change in them after age has begun to tell upon the constitution,

it should not be done but for important reasons, and under direct medical control. The natural sensations will gradually guide the individual to those modifications of previous habits which accord with the altered structures and diminished powers; and this, more particularly in the case of active or violent exertions, which the hardening and ossification of the various tissues, but more particularly of the various coats of the arteries, render hazardous. The weakened digestion of advanced life should be considered in the food, which, while it is nutritious, ought at the same time to be lightly cooked, and everything like hardening avoided. Where the teeth are deficient, meat should be well divided, either by mincing before cooking, or by the knife after. The meals light, not at too long intervals. If the dinner be early, as it ought to be for the aged, who are not obliged to hurry off to business, supper, but a light one, should always be taken. The skin of old people is often most shamefully and disgustingly neglected, and no point in their management is more closely connected with their comfort and health; it should frequently be sponged with tepid water, and well rubbed afterwards with a rough towel to promote reaction. It ought at the same time to be carefully protected by woollen clothing; old people are most injuriously susceptible of the changes of external temperature, particularly cold; indeed, a few degrees fall in the thermometer may be the immediate cause of death in very advanced life, and the average number of old people affected by apoplectic or paralytic seizures is apt to be notably increased at the setting in of frost. Exercise by the old should be continued as long as they are able to take it, but should never extend to fatigue. Sleeplessness, so frequently and loudly complained of by aged people, is, in some respects, natural; as life advances, nature would seem to require less of the soft restorer. It is not well to endeavor to overcome it by narcotic medicines. If possible, the time of sleep should, by habit, be kept to the early hours of night, and in summer especially, the tedium of the early morning may be relieved by reading, knitting, sewing, or some other light employment, even in bed.

In advanced life, the urinary organs require the greatest care, the call to relieve them should never on any account be delayed; on the slightest symptoms of derangement proper medical advice ought to be taken at once, it may prevent evils which too often render the latter years miserable. It is most important for old people to give themselves time to empty the bladder thoroughly; they do this with more difficulty than the young. The medicines prescribed for the aged should be, whenever it is possible, of a warm character, to counteract the tendency to flatulent distension: large doses of mercurials, neutral salts, and strong purgatives are all to be avoided. Alkalies, even when given to coun-

teract a tendency to the acid of gout or gravel, must be carefully watched, and not too long continued; they may produce the opposite state from that which they are intended to correct, a much greater evil. Pills, especially if at all hard, are apt to pass through the bowels unchanged. When an aperient is required by an old person, none is more suitable than a moderate dose of infusion of senna, to which a little ginger, or a teaspoonful of bark or of gentian is added. Six to eight drams of the compound decoction of aloes answers well, if there is no great tendency to piles. When the bowels are habitually constipated, a clyster, of a pint to a pint and a half of warm soap-water, must be given occasionally as required, this counteracts the great tendency to faecal accumulation. The doses of medicine ought always to be diminished after the period of incipient old age. (See SANITARY SCIENCE, CLIMACTERIC DISEASE, HEALTH, DIET, EXERCISE, CLIMATE, AIR, CLOTHING, LONGEVITY, DECAY, HOUSES, SLEEP, STIMULANTS, TOBACCO, LIFE; EYE, DISEASES OF; EAR, DISEASES OF; HEALTH RESORTS, MINERAL WATERS, RHEUMATISM, GOUT, GRAVEL, APOPLEXY PARALYSIS, BATHS, ABLUTION, SICK ROOM, COOKERY FOR THE SICK.)

AGENT, *a'-jent*, in Medicine, anything which acts or produces an effect upon the body. In Pathology, the extraneous causes of disease are called morbid agents; and in Therapeutics, medicines, and all things used in the treatment of the disease, are called therapeutical agents.

AGRIMONY, *ag'-re-mo-ne* [Lat. *Agrimonia*], also called cocklebur and stickwort. The Agrimony, a genus of dicotyledonous plants, belonging to the Rose order, or *Rosaceæ*. The species *A. Eupatoria* is one of our common roadside plants, and is found in flower about June. The leaves are very handsome, being large and deeply cut at the edge, and divided even down to the main stalk; the flowers are yellow, arranged on a long simple spike, with a little leaf at the base of each, and the fruit is beset with bristles. Agrimony is a mild tonic, alterative, vermifuge, and astringent. Is highly recommended in bowel complaints, gonorrhœa, leucorrhœa, chronic mucous diseases, and chronic affections of the digestive organs. A strong decoction, if persisted in, is reputed very successful in scrofula; it is also useful as a gargle in ulcerations of the mouth and throat. Dose of the powdered leaves 20 to 60 grains; of the decoction, 2 or 3 ounces three times a day. (See DECOCTION.)

AGUE, INTERMITTENT FEVER, *a'-gu, in-ter-mit'tent* [Fr. *ague*, sharp], sometimes called chill fever. This is a febrile disease, occurring in paroxysms, and observing a certain regular succession, characterized by unnatural coldness, unnatural heat, and unnatural perspiration. These phenomena are developed in a succession, more or less

regular, which pass into each other by insensible steps. It prevails chiefly in marshy districts; the production of that condition of the atmosphere which originates it being generally associated with the presence of decaying vegetable and animal matter. To this peculiar atmospheric state, the terms marsh miasma, and malaria, have been applied. A certain degree of heat appears necessary for the origination of malaria; ague is unknown in cold regions, and becomes more virulent the nearer the tropics are approached. The malarious poison does not seem to extend to any great height above the surface of the marsh, and persons who are compelled by circumstances to sleep in a locality where ague prevails, are more likely to escape the effects, by occupying rooms in the upper stories of the house. Moreover, marsh poison may be carried a considerable distance by the wind; the leeward side of a malarious district is always the most dangerous. High and thickly grown trees have the power of attracting and retaining marsh miasmata; their vicinity, therefore, in malarious districts, at night, and especially as sleeping stations, is to be avoided; at the same time, the fact is taken advantage of by the residents in such districts, for if they can place their dwellings so that a belt of trees intervenes between them and the marsh, they are safe. Strangers are more likely to become the subjects of ague than those who are regularly resident in the district; the latter, however, if the district be a decidedly malarious one, even if they do not suffer from regular ague, are scarcely ever healthy. An individual, whether in this country or abroad, should consider well before placing himself within the influence of a malarious atmosphere; no worldly advantage can be set off against the miserable condition of a man subject to periodic ague. The emigrant, in choosing the scene of his future labors, ought to make himself very certain upon this head, and when he is assured, should be very careful not to expose himself, even for a night, to the influence of an ague district if he possibly can avoid it. One of the most remarkable features of intermittent fever, is its tendency to return upon those who have once suffered from it. An east wind, indiscretion in diet, anything which lowers the tone of the general health, may bring back the enemy. A paroxysm of ague is divided by scientific writers into three consecutive stages, called respectively the cold, hot, and sweating stages.

Symptoms.—A sensation of uneasiness and distress of the pit of the stomach; the patient is languid, tired, debilitated, and incapable of exerting himself; he occasionally stretches his limbs and is continually yawning; he soon begins to feel cold chills running down the back, and gradually extending over his whole frame; the skin turns blue, and is cold to the touch, the surface being raised into little roughened prominences, giving rise to the characteristic appearance called in popular

language "goose skin," and in technical terms *cutis anserina*; the features shrink and turn pale, the lips and nails assume a blue color, and the fingers are much drawn up, so that rings which previously fitted tightly, now fall off; the urine is scanty, the tongue white and furred, the respiration is hurried, and the teeth chatter. By degrees this state of things passes into the hot stage: flushes of heat begin to wander over various parts of the body; the skin, previously rough and pale, regains its natural smoothness and color, the face becomes hot and plethoric-looking, the features regain their ordinary condition, the countenance assumes its natural expression, and the pulse returns to its normal frequency and fulness. After the skin has remained in this hot and dry state for a short space of time, perspiration begins to break out in various parts of the surface, especially upon the face and forehead, the thirst is allayed, the breathing becomes natural, and the urine secreted in its healthy proportion.

The disease does not always run so regular a course as described above; but one or more of the stages may be left out, and rare instances have been known in which the order of the stages has been reversed. The aguish paroxysm returns with great regularity, and this is one of the most interesting points in the history of the disease, and one very difficult to account for, and so has been thought, as is usual in such cases, to be due to many different chains of circumstances. By the time of the regular return of the paroxysm, ague has been divided into three different species, called quotidian, tertian, and quartan ague; and we shall now proceed to say a few words about each of them.

The time elapsing between the end of one paroxysm and the beginning of another is called an *intermission*, and that between the commencement of one fit and the beginning of another an *interval*. In the *quotidian* form of ague, fits occur every day, and usually in the morning, lasting from ten to twelve hours, and, of course, having the shortest interval. Its cold stage is short; but the whole paroxysm lasts longer than those of the other two species. The quotidian form most frequently occurs in the spring, and is easy of cure. In *tertian* ague, the attacks recur every second day: thus, a person being attacked on Monday, will have a return of the disease on the following Wednesday. It commences about noon, and is the form most commonly met with. *Quartan* ague occurs in paroxysms which return every third day: a person who has a fit on Monday, will have another on Thursday. It is the most severe form of the disorder, and the most difficult to cure. It occurs late in the afternoon, and as it has the longest cold stage, so it has the longest interval. It prefers the autumnal months for its attacks, and often proves fatal to life.

There are various modifications of these three forms described by scientific writers, and occasionally met with in actual practice, but which need no remarks in a work of the present kind, the three detailed above being those commonly occurring, and are types of the disease. Sometimes intermittent fever occurs in an erratic form, accompanied by no well-marked symptoms; but by its capricious behaviour is easily distinguished, and readily cured by the experienced medical practitioner.

Treatment.—When an individual is attacked with the cold stage of the fever, the application of external warmth is at once the most natural and beneficial remedy; this may be done either by means of bags of heated bran, salt, or any other convenient method; or if a vapor-bath be at hand, it may be used, or an extempore one made, by seating the patient, wrapped in a blanket, on a chair over a bucket containing hot water, which is kept steaming by means of heated stones thrown into it from time to time. Warm, diluent drinks may be freely allowed, weak tea, barley-water, and such like; only in a very few debilitated cases may a little wine be added. Emetics have been given at this stage, but are not advisable; a brisk purgative is, however, required at the commencement; none is more convenient than a pill containing one grain of calomel, and three grains of the compound rhubarb pill. Of these, two may be given to an adult, or

Take of Sulphate of magnesia Twelve drams.

Carbonate of magnesia..... Three drams.

Peppermint water..... Six ounces.—*Mix.*

Take two tablespoonfuls when required.

When the hot stage has fairly set in, cooling drinks may be allowed, and the surface of the body sponged with tepid water, and when sweat begins to moisten the surface, the trunk and limbs must be rubbed dry with towels, and the sweating encouraged by tepid drinks, until the feverish symptoms are quite gone. The individual paroxysm being over, the object is to cure the disease and prevent its recurrence. For this purpose numberless remedies have been proposed, tried, and the vast majority of them rejected as little less than worthless. The sheet-anchor still is to be found in the cinchona bark, or its chief alkaloid, quinine. Whatever remedy may be selected, it is essentially necessary to preface its use by thoroughly clearing out the whole passage of the alimentary canal by some active purgative; and there is none that will more frequently meet the desired indication than the calomel and rhubarb, 3 grains of the former to 5 of the latter, followed in four hours by a dose of castor oil. If, however, the patient be anæmic, and the fever of a low type, the calomel must be omitted. Various methods of administering quinine in ague have been proposed, each having a numerous body of advocates. One proposes to give it in large doses, not only during

the intermissions, but also during the hot stages. Another says it should be given in one large dose immediately after the paroxysm of the fever. Another, that it should be given in one large dose immediately before the expected paroxysm. Yet another, that it should be given in one 10 grain dose on a day free from fever. While the celebrated Prof. Graves, who objects to the continued use of quinine, proposes to give it at long intervals, administering it for four successive days, then intermitting it for the following six, thus embracing the interval comprehended in three fits. By this means, he says the system is kept sufficiently under the curative influence of the remedy without being rendered too familiar with it. The weight of the testimony from all quarters, however, appears to be in favor of its administration in comparatively small doses during the intermission of the fever. A very safe plan is the following: After having given a brisk purgative, and when the stomach is loaded, an emetic composed of 10 grains of powdered ipecac, also,

Take of Sulphate of quinine.....	Eighteen grains.
Dilute sulphuric acid.....	One dram.
Compound tincture of lavender	Two drams.
Pure water.....	Six ounces.— <i>Mix.</i>

Let two tablespoonfuls be given every four hours.

Very large doses of quinine have been taken, apparently without injury, but the practice is not, by any means, without danger. In the congestive variety of ague, the chief reliance must be placed upon the immediate administration of full doses of quinine, from 10 to 20 grains repeated every hour or two until there is reaction. If the patient cannot swallow, or if there be persistent vomiting, it should be administered by enema in a larger dose. At the same time mustard should be applied over the chest, abdomen, and to the extremities, or along the spine, or flannels steeped in hot water to which mustard has been added, or friction with the hands or a woollen cloth.

When quinine fails, as it sometimes will, arsenic may be safely, and generally, successfully given as follows:

Take of Fowler's solution of arsenic.....	Twenty drops.
Infusion of gentian.....	Eight ounces.— <i>Mix</i>

Take an eighth part three times a day.

If any unpleasant symptoms arise, such as nausea, vomiting, purging, watering of the eyes, itching of the eyelids, and headache, the arsenic must be promptly stopped.

Salicine is another remedy which has been much used in this disease, but it is inferior in its effects to quinine. It may be taken thus:

Take of Salicine.....	Half a dram.
Pure water	Six ounces.
Tincture of cardamoms	Two drams.— <i>Mix.</i>

Give two tablespoonfuls three times a day.

Nitric acid has also been very highly recommended in the treatment of ague. Twenty-five drops of the dilute acid of the pharmacopœia may be given every six hours in a wine-glassful of water, or some bitter infusion, as chamomile, which is itself said to have some influence over ague.

Among the other substitutes for quinine, may be mentioned piperine, the active principle of the *piper nigrum*, or black pepper, in doses of 6 or 8 grains three times a day; berberine, ferrocyanuret of iron; common salt, given in half dram doses in some mucilaginous vehicle, such as slippery-elm water, every two or three hours; sal-ammoniac, and the *Cornus Florida* or American dogwood. The latter used in the form of decoction made by boiling a handful of the bark in a quart of water, and given in wine-glassful doses every three or four hours, will certainly exercise a very marked influence over even severe attacks of this disease.

Preventive Treatment.—Persons who are compelled to go into, or reside in malarious districts, should always take certain precautions which are more or less effective in warding off an attack of this unwelcome visitor. The clothing should be suited to the temperature of the particular region, the night air should be carefully avoided, the bed-room occupied should be in the upper part of the house, the windows should be closed at night, and a fire lit in the neighborhood, as it is an undeniable fact that fire has a tendency to destroy malaria. Care should be taken not to drink the water from ponds, creeks or superficial springs, and if this cannot be avoided, the water should first be well boiled. Bathing in these streams, especially after sundown, should not be indulged in. Persons going into such a district, should never go without a supply of quinine. Two or three grains in a glass of infusion of chamomile, or calamus root, before breakfast, will often suffice to carry one through a temporary residence with comparative safety. It is also of very great importance that the stomach and bowels should be maintained in a healthy condition. Constipation must be carefully obviated by proper regard to regimen, and an occasional dose of aperient medicine. “Early to bed” in these situations, is good advice, but not “early to rise.” Before going out from the house, the stomach should be replenished with a good supply of food, and care should be taken not to sleep by the way. Parties erecting dwelling-houses in malarious localities, will be wise to see that a belt of trees is left standing between them and the marshy ground. They should be built also on high ground, and on the windward side of any swamp or suspicious ground. On account of this remarkable property of marsh poison to cling to the foliage of trees, it is very dangerous in malarious places, to go under large thick trees, and more dangerous still to sleep under them. There

is very high authority for stating that the common sunflower is a very powerful corrective of the miasmatic poison. Large quantities of them planted around the dwelling are said to effectually ward off the disease. Dr. Cartwright, of Natchez, asserts that the *jussiaea grandiflora*, or floating plant of the bayous and lakes of lower Louisiana, possesses the power of preventing the development of malaria in regions particularly adapted for its generation. Of course, removal of the person from the malarious locality is of prime importance, but where this cannot be done, attention to the above suggestions will very much ameliorate the situation. (See QUININE, CORNUS FLORIDA, CLIMATE, MALARIA.)

AGUE CAKE, the enlarged spleen, which is frequently the result of repeated attacks of ague. It forms a perceptible tumor in the left hypochondriac region of the abdomen. (See ABDOMEN, SPLEEN.)

AILANTHUS GLANDULOSA, *a-lan'-thus*. The bark is said to be antispasmodic and a muscular depressant. It is used in epilepsy, palpitation of the heart, asthma, hiccough, and dysentery. Dose of the fluid extract, 10 to 30 drops three times a day.

AIR, *are* [Gr. *aer*, air], a term commonly applied to the atmosphere; the fluid which we breathe, and with which our globe is surrounded. It is believed to extend to the height of about forty-five miles. The weight of our atmosphere, amounting to fifteen pounds upon every square inch of surface exposed to it at ordinary levels, exerts a pressure of nearly fourteen tons distributed over the surface of every grown man. We do not feel this, because it is counteracted by the aeriform elasticity of the fluids contained within our bodies; but when the pressure of the atmosphere is taken off any portion of the surface, as by an exhausted cupping-glass, it is the elastic counteracting force within the body which pushes up the covered portion of the skin. Air is not a simple body, but it is a mechanical mixture of two gases, oxygen and nitrogen, with small quantities of water and carbonic acid, as follows:

	By Measure.	By Weight.
Nitrogen.....	77.5	75.55
Oxygen	21	23.32
Water	1.42	1.03
Carbonic acid.....	.08	.10

These proportions, however, are not always the same, and sometimes minute quantities of ammonia, ozone, and certain other substances are detected. That air, in common with all other bodies, is possessed of weight, is proved by weighing a flask before, and after it has been exhausted of air. According to Biot, 100 cubic inches weigh 31 grains. Heat causes air to expand; cold to contract. Thus, if a bladder is half filled with air and held near a fire, it will expand until the bladder is

quite full, and on being taken away it will gradually contract to its former bulk. Air being elastic and compressible, it follows that the higher we go the lighter the air becomes. The air analyzed at the foot of Chimborazo has the same composition as that analyzed at its summit, though it differs materially in density. The nitrogen of the atmosphere is believed to serve the purpose, chiefly, of diluting the oxygen, and moderating its action. It is to the oxygen contained in the atmosphere that its chemical actions are mainly due. It is this that supports combustion, and sustains the respiration of animals. In the process of respiration the air is being constantly rendered impure by a portion of its oxygen being converted into carbonic acid. The average quantity of carbonic acid given out by the lungs constitutes about 4.48 per cent. of the expired air, and the quantity exhaled by a healthy man in 24 hours is estimated at 8 or 9 ounces. It is remarkable, however, that the more impure the air, or the greater the quantity of carbonic acid it already contains, the less is the amount exhaled. Knowing then the importance of a free excretion of carbonic acid, we see the necessity of breathing a pure air, and consequently the importance of ventilation, or of keeping up a constant supply of fresh air, particularly in rooms where a number of persons are breathing together.

The headaches and uneasy sensations caused by close, crowded rooms, are familiar to all; the tragedy of the black hole of Calcutta, and that of the Irish steamer a few summers ago, are notorious. In the latter, sixty persons fastened down in a close, small cabin, perished in less than six hours. These individuals were actually poisoned by the carbonic acid gas they had themselves expired. Such effects are too obvious to require comment. It is the gradual undermining of health, the slow poisoning of those who habitually breathe a vitiated air to which attention requires to be drawn, and more particularly in the case of sleeping apartments. When it is considered that one per cent. of carbonic acid in the air will cause uneasiness; that ten per cent. is the probable limit where immediate danger to life commences, and that every adult man vitiates at least two hundred and sixteen cubic feet per hour of the pure element, it is needless to say more upon the necessity for proper ventilation; moreover, exhalations from the surface of the bodies, even of the healthy, is constantly adding a considerable proportion to the other sources of atmospheric impurity. Notwithstanding facts like the above, people lie singly, or in numbers, for six or eight hours every night, breathing over and over again the same contaminated atmosphere. They sleep heavily, and rise in the morning, wondering perhaps that they feel even more languid than when they lay down at night.

The notorious cases of low lodging-houses, and other such resorts, are

not now alluded to, but the less suspected nurseries, and well-furnished apartments, even of the higher classes, many of which, with door, window, and chimney closed, and heavy curtains drawn round heavy sleepers, are perfect hot-beds of disease. It is time such ignorant, culpable disregard of all the principles of health should cease. We spend on an average, one-third of our lives in our bed-rooms for the purpose of refreshing the body, how important then to have them as airy as possible, with free entrance for the good air, free exit for the deteriorated. If the door of a room *must* be fastened at night, let it be by a chain-bolt, or if it must be locked let the upper panels be perforated, or the window fitted with a pane of perforated glass or zinc—at all events let air in somehow. Keep the chimney open that it may carry off the impure air; this it will do, particularly if fitted with a good ventilator. Breathing the air in crowded assemblies of people is only occasional, and generally for a short time; it can do comparatively slight mischief, but the air we breathe for one-third of our lives cannot be vitiated without the most serious injury to health, and curtailment of life. Many a mother has mourned over the untimely grave of a child, little suspecting how the close, hot nursery had undermined the young constitution, before the fatal cold, or epidemic snatched her treasure away.

Diet, clothing, exercise, all claim serious attention, still more, for old or young, the purity and ventilation of the sleeping apartment.

Burning candles or lamps vitiate air in the same manner as the respiratory process of animals, they consume oxygen and form carbonic acid, consequently, they are undesirable in close rooms at night, or indeed at any time, if there is insufficient renewal of the air. A fire in the bed-room is recommended as a means of ventilation, and undoubtedly is so as long as it is burning briskly, if kept well replenished, and if the chimney draws well, but when, during the hours of sleep, the fire gets low, and the draught up the chimney is diminished, the air vitiated by the burning embers is very apt to become diffused through the apartment, and with it, sulphurous and other fumes. This point is one frequently overlooked, and from the very injurious consequences which may result, requires strict attention. Plants or flowers kept in a sleeping apartment are another not unfrequent source of impure air, for although living vegetation under the influence of sunlight has the power of abstracting carbonic acid from the atmosphere, which in fact it continually purifies from the effects of animal respiration, in darkness, the case is reversed; not only do leaves cease to absorb carbonic acid, but they give it out. When it is remembered, that in a school in which pupils had been taking lessons for three hours, with doors and windows closed, the amount of carbonic acid has been found to be eight times the

average; that much less than this causes uneasiness, that a little more may cause death, enough has been said, to prove the necessity for preserving the air we breathe in a state of the highest possible purity, and of avoiding every known source of deterioration. In the room of sickness, the necessity is increased tenfold; both for the sake of the patient and of those around, the air must be kept pure. In the few cases in which ventilation cannot be had recourse to, Liebig recommends the use of slacked lime spread on a board; this quickly absorbs the carbonic acid of any closed space in which it may be placed, and fresh air must rush in through the crevices to supply the place of the former gas. It scarcely requires mention, that all decomposing substances in whatever situation, cannot fail to render the air impure—moist vegetable matter particularly; damp decaying wood, sawdust, straw, etc., all exhale carbonic acid, and in close places may also originate serious disease. It is worthy of note, that whilst decomposing *dead* animal matter does not seem so materially to affect health, the morbid exhalations from living animal bodies poison the atmosphere to such an extent as to occasion the most malignant fevers.

Locality, it is well known, exerts much influence over the purity of the atmosphere; the air of towns must, of course, be less pure, principally from admixture of sulphurous vapor, the product of combustion. The air of the coast is stimulating and strengthening, probably in some measure owing to its containing minute portions of the sea constituents. The air of all damp, low situations is particularly unhealthy; doubly so if the situation is surrounded by elevations which prevent atmospheric changes. Intermittent fevers, and diseases of a neuralgic character prevail in these places; the noxious influence is generally more potent near the ground, and those who are compelled to reside in such localities, may escape much evil by occupying rooms as elevated above the soil as possible.

Dry air is generally good, but it may be too dry, and produce disagreeable effects upon the skin; chapped hands, etc. Moist air, when combined with cold, is worst of all. The state of the atmosphere varies much in the twenty-four hours. The fresh air of early morning, salubrious to the strong and healthy, requires to be dried and warmed by the sun before it is suitable for the invalid; even in summer, in this climate, this is scarcely the case before eight o'clock. Exposure to the damp air of evening and night must always be shunned by the weak in health; so noxious is it in some tropical or marshy regions, that one night's sleep within its influence is certain to be followed by an attack of illness. That a uniform temperature and unchanging climate is not so well adapted to maintain health as a variable one, is admitted on the authority and experience of Sir James Clark, Dr. Combe, and others.

It has become a question of the greatest moment to determine the quantity of air that is necessary to be supplied to human beings to maintain them in a state of health under varying circumstances; to determine whether the air they breathe, though sufficient in quantity, may not be altogether hurtful on account of certain impurities; to determine what these impurities are, and how to destroy them, or render them innocuous; and how, by the help of apparatus or otherwise, a sufficient quantity of air may be admitted to, and circulated through buildings in which large numbers of people are congregated. It is also one of the most interesting inquiries of modern times to ascertain what, and how many diseases may be due to deficient quantity of air for respiration, or, on the other hand, to the presence of impurities in the air that is breathed. It is almost needless to say that these are points upon which medical science is throwing more and more light every day; and it will be the object of this article to give a mere sketch of what is being done to advance our knowledge of the subject, in the hope that all may lend a helping hand to put an end to the prejudice and ignorance which still exists on these vital points, but which, nevertheless, are points concerning the everyday life and health, not only of ourselves, but of generations yet to come.

As to the requisite quantity of air, it may be well to say, once for all, that although it is desirable to know the least quantity that is compatible with health, still, wherever practicable, the quantity should not be restricted to anything like this amount, but a full and large supply should be ungrudgingly given, with the assurance that benefit will accrue.

In all calculations as to the proper amount of air to be supplied to buildings, an ample allowance must be made for the consumption of air by artificial lights. In his excellent work upon Practical Hygiene, Dr. Parker, an English writer, says:—"A common gas burner will burn nearly 3 feet per hour, and will consume 10, or probably 12 cubic feet in an evening (four hours), and therefore, from 18,000 to 21,600 cubic feet of air must be introduced in the four hours, in order properly to dilute the products of combustion, unless they are removed by a special channel." It consists with the experience of medical men that in cases of typhus, cholera, small-pox, and perhaps, more particularly of hospital-gangrene and erysipelas, nothing is so effectual as an unlimited supply of air, and that if they must name a figure which will satisfy them, their demand should be for not less than five or six thousand cubic feet per head per hour, in order properly to dilute and remove the poisons with which the air is loaded.

Those who have charge of the ventilation, either of public buildings, or

private houses, should not forget that they cannot at all trust to their own senses to inform them as to the purity or impurity of the air, for, after a time, the nerves of smell and taste lose their delicacy of perception ; and it is familiar to every one that a person may be in a very close room, and be quite unconscious of the fact, although a stranger coming in from the fresh air at once perceives the disagreeable odor. Again, people living near certain manufactories which emit odors very prejudicial to health, become so accustomed to them after a time, that they fail to notice them, and are often lulled into a dangerous tranquillity on the subject, ascribing the effects of these effluvia entirely to other causes ; and it must never be forgotten that although the natural means for the removal of noxious vapors are very wonderful and very effectual, such as the diffusion of gases, their dispersion by winds, their decomposition into innocuous compounds, etc., still, there are in existence in this country, many neighborhoods where the atmosphere is polluted to a degree quite incompatible with the life or health either, of animals, or vegetables. In considering this subject, every one would do well to reflect that the atmosphere comes into direct contact with the surface of the air cells of our lungs, which, if spread out, would cover an area of from ten to twenty square feet. Over this surface our blood is circulating with immense rapidity, ready at once to absorb all the contents which the air, pure or impure, may offer to it, and in addition to this, the impurities contained in atmospheric air are swallowed directly as well as respired, and are absorbed by the digestive system also. It is even now matter of interesting inquiry how much the evil effects of poisonous emanations in the atmosphere are to be ascribed to their being swallowed or respired. In the disease familiarly known to medical men as “ Miner’s lung,” the atmospheric impurities to which the miners are exposed, are found after death in their lungs, in the shape of pieces of carbon or charcoal, which have become covered by part of the investing structure of the lung, which has so to speak grown over them, and it may be fancied what an amount of irritation the presence of such substances will give rise to in so delicate an organ as the human lung.

By the aid of the microscope, we are enabled to demonstrate the presence of numerous substances in the air which we breathe, and especially in the atmosphere where certain trades and industries are carried on. It would be quite impossible, in an article like this, to attempt to give an account, or even an enumeration of the investigations on this subject. Let it suffice to mention a few of those trades which are most detrimental to health in this way ; and it is a melancholy instance of the perversity of human nature, that some of the most ordinary precautions, against the injurious effects of certain trades, afforded by

liberal employers, have met with such a cool reception from the men, and, in not a few instances, have been deliberately refused, although the reduction of mortality from their use has been proved over and over again. Employers, on the other hand, must take care that the means they offer are good and sensible, and must not, for instance, expect their "hands," perhaps already enfeebled in health from long hours and bad air, to adopt all at once a faulty system of ventilation, the only effect of which is to add to their sufferings, by causing them to take cold, or by making them the prey of some inflammatory disease to which they are predisposed, owing to the circumstances above named.

Amongst the trades and occupations which are most injurious, on account of the impurities in the air which those employed are forced to breathe, we might mention mining, grinding (wet and dry), button-making, brassfounding, glass-making, water-gilding, electro-plating, painting, and many others; besides all those trades which, though perhaps not positively injurious in themselves, are made so on account of the way in which they are carried on, by bad management, bad ventilation, etc. It has been proved that the colliers where the mines are well ventilated, do not suffer from diseases of the lungs to anything like the same extent as those working in mines where the ventilation is deficient. "Potter's asthma" is the popular name for disease of the lungs induced in that class of workmen by the irritating dust to which they are exposed, especially those called "flat pressers." Brassfounders are very subject to bronchitis, owing to irritation caused by the fumes of oxide of zinc which escape in the process known as brass-mixing. Makers of pearl buttons, especially those who *grind* the material, are liable to consumption, owing to the minute particles which are inhaled. Many other instances might be noted; but the above are probably sufficient. It is indeed a dreadful thing to think that many of our trades and industries are the direct means of destroying the flower of our population, and that this is owing generally to two causes—to the trade being in itself unhealthy, and to its being carried on in such a way as to make the preservation of health, under the circumstances, almost an impossibility. It is well known that, during the last ten or twenty years, many cases of poisoning by arsenic occurred, owing to the inhalation of the dust of rooms papered with green paper, into the composition of the green coloring matter of which, arsenic largely enters.

If any further proof were wanted to establish how, in certain circumstances, it may be truly said that—

"The all-surrounding heaven, the vital air,
Is big with death,"

we may mention that, by the aid of the microscope, suspended matters

have been discovered in the air of hospitals, barracks, and other public places, of such a nature that even the most ignorant may conceive how the poisons of various diseases may be transmitted through the air. Not only are the products and parts of the structure of our own bodies so discovered, but also the lower forms of animal and vegetable life. It should be remembered that, in the air of sick-rooms and such situations, these accumulations are much more liable to occur than in places not subject to emanations from the body or from its excretions, sores, or wounds; and hence a more effectual system of ventilation ought to be maintained.

In manufacturing towns people should take care, before fixing on a residence, that it is not too near any of these well-known "works," which so pollute the air as to render it unhealthy, and unfit for respiration. Such are the various glue and bone works, as well as slaughter-houses, which emit peculiar animal or organic odors of the most abominable kind; alkali works, which give off hydro-chloric acid gas; chemical, bleaching, India rubber works, etc.

In order to ascertain how foul air may be deprived of its impurities, the reader is referred to article DISINFECTANTS.

In conclusion, one word of warning to those who work in, and spend the greater part of their time in bad, foul air, such as tailors, dress-makers, printers, boot and shoe makers, and those who work in many manufactories. A large series of the most extended observations, prove incontestably the sad state of those who work in many large establishments of the above kind; and though there are many honorable exceptions, where everything that money, science, and care suggest, is willingly done to promote the health of the employed, yet, in a large proportion, the state of matters is indeed lamentable. Irregular work, long hours, insufficient time for meals, but, above all, deficient ventilation, are too often found combining to sap the foundations of constitutions once healthy, and to lay the seeds of irreparable disease, which sooner or later (generally woefully soon) brings the victim to a premature grave. It is quite true that, occasionally, instances of this find their way into the public prints, and excite momentary surprise and indignation; but "to mend the world's a vast design," and years roll on without any radical cure being applied to a system which threatens greatly to weaken the physique of the country at large. It will scarcely be believed that there are to be found numerous tailors' workshops in the country where the men are huddled together in dens, the atmosphere of which is rendered intolerable by the gas, the stoves, and their accumulated breaths and emanations, and where the amount of air supplied is *not one-tenth part of what we are deliberately told is necessary for health.* The same

state of matters obtains as to dressmakers and printers, and many heart-rending instances might be given of blasted health and hopes; but while dealing with a subject of such grave importance, it is better to avoid any attempt at dramatic effect, and rather trust that the bare statement of general truth may induce all who have any influence in such matters to aid in remedying what is well known to be such a crying evil.

Many diseases are produced by changes from heat to cold, and from cold to heat. Most inflammatory diseases are produced, in a greater or less degree, by changes in the temperature of the air. To avoid these changes, proper attention should be paid to our clothing, our houses, and the degree of heat and cold we are capable of supporting with comfort. Living long in a very hot air drains the body of its moisture, and disposes it to fevers, diseases of the liver, cholera morbus, etc.; and living long in an extremely cold air exhausts the heat and weakens all the vital functions. Sudden changes in the temperature should be particularly guarded against. Changes in the weight of the atmosphere affect our health very materially, being sometimes much heavier than at others. When we consider that the difference in the pressure of the air upon the body of a medium-sized man at different times is equal to a ton weight, we do not wonder that such changes affect the health. When it is heavy, the fluids and flesh of the body are rendered denser and firmer; and, on the contrary, when it is light, the flesh, the vessels and the fluids expand, and the whole body is rendered tumid. In very windy weather the air is always light, and this accounts for most people feeling so uneasy under such circumstances. The nerves are particularly affected by the weight of the atmosphere. Hysterics, hypochondria, and all nervous affections are very much aggravated by changes which are indicated by the barometer. The human body contains a large quantity of air incorporated in every tissue, and when the pressure of the external air is diminished, the air within expands, and forces asunder every fibre in the system. It cannot be doubted that disease is often caused by this alone; and though there is no known remedy for this evil, still a knowledge of the fact may explain many symptoms otherwise mysterious, and it may be owing to this cause that many sick people and invalids become bloated, and appear more fleshy than they really are.

Damp air is very injurious to health; hence people who occupy cellars and other low, damp places, are necessarily and invariably unhealthy. The occupants are sooner or later overtaken by inflammations, dysenteries and putrid fevers. There should be legal enactments prohibiting people from living under the ground, or in damp, wet cellars.

The sea air is the most pure, healthy and invigorating; not only

being a promoter of good health, but of good spirits and a cheerful mind. It is the freest of foreign gases and vapors, and therefore contains the most *vital* air in the same bulk. Fevers are milder, and sores, ulcers and diseases heal quicker at sea than upon the land, if the same kind of nourishment is afforded. Sea air has an instantaneous and remarkable effect upon the digestive organs. It stimulates the appetite, and quickens the conversion of food into blood. The sea air is much more favorable than the inland air to those suffering from dyspepsia, nervous diseases, liver complaints, ulcers, sores, abscesses, diarrhœa, dysentery, the bowel complaint of children, dropsy, and all chronic diseases excepting consumption, and during the summer the sea-shore air of New England is better than that of the Southern States, being cooler. But the States bordering on the Atlantic, north of Florida, are the least favorable for consumptives and rheumatic persons, of any in the Union, being so subject to variations. This is especially true in the winter season.

The inland air is charged with a variety of gases, vapors and odors, arising from the earth in the decomposition of vegetable and animal substances. The decay of these substances is so rapid and extensive in some seasons that a malignant state of the air is produced; consequently, fevers are much more prevalent in inland towns, particularly where vegetation is abundant and rapid in growth, than upon the sea-shore or islands.

Marshes, ponds, lakes, and large rivers which overflow extensive intervals or meadows, are much the sickliest locations upon the land. A miasma or putrid air arises from such places which generates malignant dysentery, bilious fever, and fever and ague. In such locations the houses should be set high, either upon piles, or the highest and driest soil; and the night air should be carefully avoided; the body should be well defended from sudden chills, and the diet wholesome and abundant.

Dry, sandy places, though not so fertile and prolific, are much healthier than moist, alluvial, clayey soils. But, though the country air is not so pure as the sea air, it is vastly more healthy than that of the city. A much larger proportion of children is raised in the country than in the city. The city air confined and still, and mixed with a thousand noxious vapors, odors, gases and smokes—the smoke of chimneys alone occupies a large space in the air of cities—and the perspiration and effluvia arising from a dense population of men and animals also contribute largely to the contamination. Besides these, the decay and putrefaction of large stores of fish, grains, meats, vegetables and fruits, and the natural accumulations of filth and dirt in the streets and sewers,

are all agents in contributing to the impurity of the atmosphere. From these and many other sources, innumerable deadly gases constantly arise into the air, to be breathed by the inhabitants. Cities located upon high, dry land, upon the sea-shore, upon the lake, or upon the prairie, where the air can be changed by daily breezes, or fanned away upon the open sea or lake, are *comparatively* healthy. Ventilation should be the study of all, but especially of those who live in the city. Every hour that can be spared from business should be spent in the parks, or if possible in the country. Having your business in the city and your residence in the country, is the most preferable practice both for enjoyment and health. Even in cities it is much better to allow your children to romp in the open air, than to be shut up in the house, deprived of light and breezes, as well as exercise. Exercise quickens the circulation of the blood, and thereby makes up to a certain extent for the want of a pure atmosphere. Those who live a great deal in the open air uniformly sleep better, have better appetites, fewer diseases, more strength, and live longer than those of sedentary habits. (See CLIMATE, RESPIRATION, LUNGS, AERATION, VENTILATION, OXYGEN, CARBONIC ACID, DISINFECTANTS, NITROGEN, HOUSES.)

AIR-BEDS. An air-bed consists of a sack, in the shape of a mattress, divided into a number of air-tight compartments, a projection at one end forming the bolster. Each compartment is provided with a valve, and can be inflated with air by means of a bellows. Air-beds were known at the commencement of the 18th century; but, being manufactured of leather, were of considerable cost. They are now made of macintosh cloth and vulcanized india-rubber. Their advantages are coolness, elasticity, and portability, and they are especially valuable to invalids. They are especially useful for invalids, as they maintain a uniformly soft surface, and do not, like feather-beds, take an unyielding impression from the weight of the body lying upon them. They require no "making," as it is termed, and an invalid can without difficulty change his position upon them. They are made of some air-tight material. When in use they require to be filled with air; but when not in use, the air may be let off by means of the valve, and the bed folded up. Great care should be taken that the valve is in proper order, or the bed may collapse, and cause much annoyance to the patient. (See BED, BED-ROOM.)

AIR PASSAGES, FOREIGN BODIES IN. (See FOREIGN BODIES IN AIR PASSAGES.)

AIR SWELLINGS. (See TYMPANY.)

ALBINO, *al-bi'-no* [Lat. *albus*, white], an individual in whom the usual coloring matter of the body is absent. The complexion is un-

naturally white, the hair white in every part of the body, the iris is of a pale rose color, causing the eye to appear pink; the constitution is feeble. White rabbits with red eyes are albino rabbits. Albino is a Spanish term for the white progeny of negro parents.

ALBUGO, *al-bu'-go* [Lat. *albugo*, whiteness; a white spot], a white speck in the eye; a disease in the eye by which the cornea contracts a whiteness; leucoma.

ALBUMEN, *al-bu'-men* [Lat. *albus*, white], in Chemistry, a whitish viscous matter, which forms an important element in vegetable and animal organic substances. It is distinguished by its peculiar property of becoming coagulated or insoluble at a high temperature. White of egg and serum of blood consist almost entirely of albumen. The hair and nails contain large quantities of it in its coagulated state. Pure albumen is insoluble in water. White of egg and serum contain a certain amount of free alkali, in which it is dissolved; hence its precipitation when acids are added. It is also precipitated when salts of mercury, copper, silver, lead, etc., are added to its solution, forming with them definite insoluble compounds. This property renders it valuable as an antidote to metallic poisons. Tannin, gallic acid, and extractive matter behave with it in a similar manner; for which reason it is used much in the arts as a clarifying agent. Its composition is given below, the presence of sulphur being rendered familiar to all by the effects of cooked eggs upon silver spoons.

Carbon.....	53.5
Hydrogen.....	7.0
Nitrogen.....	15.5
Oxygen.....	22.0
Phosphorus ...	0.4
Sulphur.....	1.6
	<hr/>
	100.0

Heat first coagulates and then hardens albumen, thus impairing its digestibility; a reason for avoiding over-cooked meats as well as eggs.

ALBUMINURIA. (See BRIGHT'S DISEASE.)

ALCOHOL, *al'-ko-hol* [Arab. *al*, the, *koohl*, any volatile substance.] Alcohol is the intoxicating principle of all spirituous liquors, or the principle upon which the characteristic properties of fermented and distilled liquids depend. It is highly rectified or pure spirit; sometimes called spirits of wine, from the fact that it was at first obtained by the distillation of wine. A mixture of equal weights of absolute alcohol and water, is called proof-spirit. If a solution of sugar be exposed to the air for any length of time, no change will take place; but if vegetable or animal organic matter be present, fermentation commences, and a

fresh principle is formed, which may be separated by distillation. The first distillate is comparatively weak; but by the use of caustic potash, which has a powerful affinity for water, absolute alcohol is obtained. Pure alcohol is colorless and limpid, pungent to the taste and smell. Its specific gravity at 60° is .7938. It boils at 173°, and has been rendered gelatinous by cold, but has never been frozen. It is very inflammable, and burns without smoke. It mixes with water in all proportions, and has a great attraction for it. Its solvent powers are great, especially with respect to resins and resinous gums. The strength of alcohol is in exact proportion to its density, which is estimated by means of a hydrometer. Proof-spirit has a specific gravity of .918, and contains 49½ per cent. of absolute alcohol. Wine, beer, and spirits owe their intoxicating properties to alcohol. The chemical composition of alcohol is $C_4H_6O_2$, and it is regarded by chemists as a hydrated oxide of the organic base ethyl; *i.e.* $C_4H_5 + HO$. The alcohols are very numerous, their numbers being increased daily. Alcohol of different strengths is much used in the arts, as a solvent for varnishes, resins, and essential oils; as a fuel in spirit-lamps; as an anti-septic, and as a stimulant in medicine. The following tables give the amount by measure of alcohol in various liquids contained in one hundred parts:

<i>Spirits.</i>		
Hollands	57.60	Claret.....15.10
Whiskey	48-56.00	Burgundy14.57
Rum.....	53.68	Champagne.....12.61
Brandy	53.39	Hock.....12.08
		Tokay 9.88
<i>Wines.</i>		
Raisin.....	25.12	Mead..... 7.32
Marsala.....	25.09	Perry 7.26
Sherry (Brown)....	23.01	Cider (highest average) 9.87
Port.....	22.96	“ (lowest average)..... 5.21
Madeira	22.27	Lager Beer (New York) 5.86
Gooseberry.....	11.84	“ “ (Munich) 4.70
Grape.....	18.11	Ale (Burton) 8.88
Currant.....	20.55	“ (Edinburgh)..... 6.20
Elder.....	9.87	Stout 6.80
Orange	11.26	Porter 4.20
Sherry (Amontillado).....	20.05	Small Beer..... 1.28

In Medicine, alcohol is used to hold in solution certain vegetable, and in a few cases mineral substances, which are most conveniently administered in this form. Some of these, such as camphor, will dissolve to the extent required, only in strong alcohol or rectified spirit; for others a more diluted alcohol or proof-spirit is sufficient.

In addition to its solvent properties, alcohol is likewise valuable from its power of preserving the infusions or solutions to which it is added.

One ounce by measure of alcohol, mixed with a pint of water, forms a good evaporating lotion to be used when it is desirable to reduce the external heat of any portion of the body. As a topical application in cases of inflammation, cramps, pains, fevers, bed-sores, alcohol is a most valuable remedy. It is an excellent lotion in bruises or sprains. A black eye produced by a blow may often be avoided by persistently bathing the part with alcohol or some other spirit. It is not taken internally in its pure state. In rheumatic inflammations, both acute and chronic, hot spirits of wine, or hot alcohol, applied to the part is an excellent remedy. In inflammation of the uterus, breasts, and bowels, hot applications of alcohol are among the best means of cure. It is the alcohol contained in wine, that makes it useful as a lotion for fresh wounds. Scratches, burns, cuts, and bites are relieved by bathing with alcohol, or some kind of liquor.

Alcohol, as a counter-irritant, is very effectual in deep-seated pains generally, as well as in sore throat, pleurisy, etc. It may be applied as a counter-irritant in the following way, namely: rub the part affected thoroughly with the alcohol, then wring a cloth out well in it, with which cover the part, after which wrap the whole with a dry cloth; the effect is similar to that of a mustard plaster. It will thus be seen that externally applied, alcohol produces two opposite effects—when used as an evaporating lotion it is cooling, and when used as a counter-irritant it is heating.

Alcoholic liquors are sometimes useful, and in fact, necessary, to be taken internally. In cases of great prostration and exhaustion, following a wound or severe accident, wine, brandy, or whiskey should be administered in large doses, at once. Poisoning from the bites of venomous serpents may generally be effectually treated by immediately administering large doses of spirituous liquor, which must be continued till signs of intoxication appear. In low fevers it is sometimes necessary to use alcoholic drinks. The custom of some people of using spirituous liquors for “all the ills and ailments of life,” cannot be too much discouraged. This practice often becomes a curse, resulting unconsciously in fixed habits, which lead to intemperance and woe. (See SPIRITS, WHISKEY, BRANDY, ALE, WINE, STIMULANTS; STIMULANTS, ALCOHOLIC; TINCTURES, ETC.)

ALDEHYDE, *al'-de-hide*. When alcohol is submitted to any process by which hydrogen is extracted from it (deoxidation, for instance), it becomes an aldehyde, every alcohol having its corresponding aldehyde. Ethylic, or vinous aldehyde, is limpid and colorless, with a peculiar and characteristic odor. Its density is .790; it boils at 72°, and is neutral to test-paper. On exposure to the air, it absorbs oxygen, and resolves into acetic acid.

ALDER. (See ALNUS RUBRA.)

ALE, *ail* [Saxon *eala*, *eale*, or *aloth*], a fermented malt liquor. The name was formerly given to unhopped malt liquor, but now applied to very strong and comparatively light-colored beer. The hop was brought into England from the Netherlands in the reign of Henry VIII., and the word *beer*, from the German *bier*, was then employed to distinguish the hopped liquor from the more ancient beverage. The connection between hops and the word beer is indicated by the old couplet:

“Hops, reformation, bays, and beer,
Came into England all in one year.”

Ale made from malt alone was a favorite beverage of the ancient Germans, and was esteemed by the Danes and Anglo-Saxons. Isidorus and Orosius state that the ancient Britons and other Celtic nations drank ale, which they made by a process very similar to our modern brewing. They inform us that the grain was first steeped in water and made to germinate; it was then dried and ground, after which it was infused in a certain quantity of water, and the whole fermented. Ale was formerly regarded in England as a necessary of life, and various ordinances or assizes have been passed for regulating its price and quality. Thus, in 1251, during the reign of Henry III., an assize of bread and ale was struck, which settled the price of the latter article as follows: “A brewer may sell two gallons of ale for a penny in cities, and three or four gallons for the same price in the country.” The penny of that time was worth about six cents of our currency. Ale, as now distinguished from porter and small beer, is prepared from pale malt, and, except in the case of bitter ale, a comparatively small proportion of hops. Strong ale is made from the best malt and the finest kind of hops. The fermentation is allowed to proceed slowly, until the yeast is exhausted and perfectly separated. The Scotch ales are remarkable for the very small quantity of hops which they contain. Strong ales contain from $5\frac{1}{2}$ to 10 per cent., by weight, of alcohol. They also contain, besides the saccharine matter, alcohol, and a bitter principle—a proportion of lactic acid, especially when old and hard. Lager beer contains from 4 to 6 per cent. of alcohol. There are debilitated conditions of the system, nervous prostration, dyspepsia, etc., in which good table beer, small beer, or lager beer taken in moderation, and with discretion, may be useful, providing malt liquor agrees with the patient. The beer is a gentle stimulant and tonic, and the bitter principle assists to maintain the tone of the stomach. All malt liquors are much healthier kept in bottled form, unless they can always be drawn from a cask just opened. Lager beer becomes stale or hard in a few hours after the cask is tapped, and ale in a few days, and hard or stale ale or beer is always injurious.

Some people on this account habitually add a small portion of carbonate of soda to their malt liquor, but the practice is most hurtful, and rapidly debilitates the stomach, and deteriorates the blood.

Though ale and beer are often prescribed for the delicate, and in convalescence, with good results, it is not usually a healthy beverage for the robust, but for those who *will* use stimulant in some form, the malt liquors and lighter wines are undoubtedly the best; though the constant use of them by the healthy or robust—for whom a stimulant or tonic is unnecessary—is pernicious.

India bitter beer agrees with some, and the great amount of bitter it contains, acts as a powerful tonic to weak stomachs, but for this very reason, its use ought not to be persevered in long at a time. The amount of spirit it contains is not large, but the narcotic properties of the hop are apt to affect the head. It is lighter than the more saccharine ales. Malt liquors or ale and beer never agree with those who are liable to gout or gravel, and if their use be continued, they are almost certain to induce a paroxysm of either of the diseases; the slightest degree of acidity or hardness aggravates their bad effects, tenfold. A single glass of hard ale is sufficient to induce an attack of gravel in the predisposed. Those who suffer from plethora, and consequent head symptoms, from chronic cough, or oppression of breathing, from gout, gravel, or habitual acidity of the stomach, should never touch either ale or beer.

It should be remembered there is a limit to the use of tonics of any kind, and bitter tonics, if taken regularly for a length of time, may tend rather to weaken than to strengthen the digestive powers. On this account it is to be feared that the now fashionable “bitter beer,” and lager beer, although good tonics in some states of the system, will, if taken too continuously, tend rather to mischief than to benefit.

Ale or beer is usually most beneficial, taken before or with meals, and before retiring, when it induces sleep. Lager beer is preferable to ale, as it contains a smaller per cent. of alcohol (See ALCOHOL, STIMULANTS; STIMULANTS, ALCOHOLIC; TONICS, PORTER.)

ALETRIS, *a-lé-tris*, Unicorn root, belongs to Nat. order *Liliaceæ*. Known as star grass, colic root, ague root, crow corn, etc. Indigenous to North America. When dried is used as a bitter tonic; useful in dyspepsia, hysteria, flatulence, and also as a uterine tonic. The resinous extract is called *Aletrin*. Dose of extract, 1 to 2 grains every four or six hours; powdered root, 5 to 10 grains three times a day; tincture, 5 to 15 drops in water every four or six hours.

ALGÆ, *al'-jee* [Lat. sea-weeds], in Bot., comprehends the sea-weeds and the multifarious green vegetable forms of simple cellular structure

met with in fresh water and in permanently damp situations. The humblest members of the vegetable kingdom belong to this class. Algæ are flowerless, and consequently seedless. They are propagated in various ways by reproductive particles, called spores or sporules. The class comprehends a vast variety of plants, exhibiting a wonderful multiplicity of forms, colors, sizes, and degrees of complexity in structure. Professor Bentley roughly estimates the number of species of algæ at 2,500. Many are used for food in different parts of the world, their nutritious properties being due to the presence of starch, mannite, mucilage, albumen, and glucose. The ashes of several kinds of sea-weeds form *kelp*, formerly extensively used for the preparation of carbonate of soda. Iodine is also obtained from sea-weeds. None of the plants in this great class are known to be poisonous.

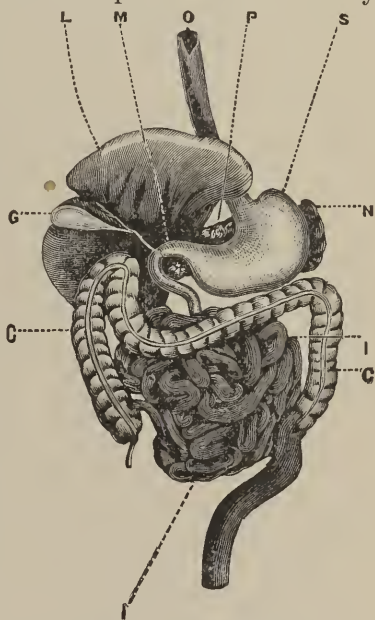
ALIMENT, *al'-e-ment* [Lat. *alimentum*, from *alo*, I nourish]. Any substance that is capable of nourishing the body may be termed aliment. Every aliment must be derived from either the animal or vegetable kingdom, as the capacity of affording nourishment to the animal system would appear to belong exclusively to organized matter, or that which has possessed life. Nevertheless, certain substances appertaining to the inorganic kingdom, although incapable of themselves to form an aliment, have yet the power, when taken in conjunction with aliments, of assisting in the process of nutrition. These inorganic substances are principally water, salt, lime, etc. Aliments have been distinguished into nine classes. The first, or *Farinaceous* class, includes barley, wheat, oats, rice, maize, potatoes, haricots, lentils, peas, etc. The second, or *Mucilaginous* class, comprehends melons, cabbages, turnips, beet-root, carrots, asparagus, etc. The third, or *Sweet* class of aliments, includes dates, apricots, dried grapes, figs, the various sorts of sugars, etc. In the fourth, or *Acidulous* class, are grapes, strawberries, raspberries, mulberries, pears, prunes, apples, cherries, oranges, gooseberries, etc. In the fifth, or *Fatty* class, there are animal fats, oils, butter, cocoa, nuts, walnuts, olives, sweet almonds, etc. The sixth, or *Caseous* class, includes the various sorts of milk, cheese, etc. In the seventh, or *Gelatinous* class, there are several kinds of fish, the flesh of young animals, calf's-foot, etc. In the eighth, or *Albuminous* class, there are included brain, eggs, etc. The ninth, or *Fibrinous* class, comprehends the flesh and the blood of various animals. To these nine divisions a tenth may be added, comprehending the *Condiments*, as pepper, salt, mustard, vinegar, horseradish, etc. Certain liquids, or *Drinks*, should also be reckoned among the aliments, as water of various kinds (spring-water, well-water, river-water), the infusions of tea and coffee, the various kinds of fermented liquors, as cider, perry, beer, wine, etc.; the

alcoholic liquors, as gin, whiskey, brandy, etc. As a rule, aliments require to be prepared by cooking, so as to be made more agreeable to the palate, or more easy of digestion, but few aliments being used in an undressed or natural condition. Amid the great variety of nutrient materials with which man has been furnished by his Creator, it is by no means a matter of indifference which he selects. The first point is to be certain that the aliment used contains all the principles required to support health and strength. In a mixed diet, this is tolerably sure to be the case; but not so when the food is restricted to one or two articles; and most grievous mistakes have occurred on this point.

Some alimentary substances contain within themselves whatever is required for the nourishment of the animal body; of these, albumen, milk, bread, are examples. Others, such as jelly, arrow-root, sugar, contain only parts of the elements required for proper nourishment, and could not of themselves support life. Children have actually been partially starved to death on arrow-root mucilage, made with water and sugar alone, whilst those around considered them to be receiving full nourishment. At the same time, even in the case of a single nutrient compound, such as albumen, containing all requisite principles, experience has shown that it alone is unfit to preserve health and strength. The whole alimentary system requires the stimulus of change. Aliment, before it can actually enter the system, must all be reduced to the state of liquid. Some persons err in diluting their food too sparingly, but more err in the opposite direction. Aliment may be very nutritious, but difficult of digestion. This question, however, falls more fitly under the head of diet. (See FOOD, DRINKS, DIET, BREAD.)

ALIMENTARY CANAL, *al-e-ment'-a-re ka-nal'* [Lat. *alimentum*, nourishment, food]. Alimentary canal is the name given to that great canal or conduit in animal bodies through which the food passes from the mouth to the anus. It distinguishes animal from vegetable life, plants having no common receptacle for their food, nor canal for carrying off the excrements. In the human subject, it comprises the pharynx, œsophagus or gullet, stomach, and large and small intestines, being, in a full-grown individual, nearly forty feet in length. The œsophagus extends from the throat to the stomach, which it enters towards its larger extremity, passing down the posterior part of the chest. From the smaller extremity of the stomach proceeds the first portion of the small intestines, named the duodenum, divided, however, from the stomach by the pyloric valve. The small intestines, divided normally into two more portions, jejunum and ileum, extend in a continuous coil to the length of about twenty-five feet, and then enter the large intestine in the right iliac region. The opening of the small intestine into the large, is slit-like, and is protected by

a valve. The large intestine or colon, five feet long, ascends from where it is entered by the smaller gut, as high as the under surface of the liver, it then passes across the abdomen, and descending, after making a peculiar turn, ends in the rectum or vent-gut. The calibre of the colon is much greater than that of the small intestine, and it is thrown into succuli or folds by three longitudinal muscular bands. As soon as food reaches the back of the throat, it passes from the power of the voluntary to that of the involuntary muscles, and is conveyed into the stomach by a regular wave-like action of the muscular gullet or œsophagus. When persons eat too fast, and one morsel is passed into the throat too quickly after the other, this regular muscular action becomes spasmodic, producing a very painful sensation. The mass of food from a meal, being collected at the larger end of the stomach, is there mixed with gastric juice, and converted into a pulpy gray-looking mass, the chyme, which, as it is formed, is propelled towards the pyloric or smaller extremity, by successive wave-like motions of the organ. At the pyloric valve, all well-digested food is allowed to pass, but in the healthy stomach, any portions which are not thoroughly softened, are stopped, and passed back into the organ. The food, having passed through the pylorus into the upper part of the small intestine, quickly becomes mixed with the bile, which flows into the duodenum from the liver by its proper duct, and also with the pancreatic juice. The mass of chyme is now propelled forward by a worm-like motion of the small intestines, the nutrient portions being absorbed from it as it passes onward, by the lacteal vessels. The lining membrane of the intestines is thrown into folds to increase the surface to which the chyme is exposed. Having traversed the small, the chyme is discharged into the large intestine, or colon, through the slit-like valve, and here the contents of the bowels thought by some to undergo a kind of second digestion, assume the feculent character. After yielding up in the colon the remains of nutrient matter, the mass is discharged through the rectum and anus. The



THE ORGANS OF DIGESTION.

- | | |
|---------------|----------------------|
| O, Œsophagus. | I, Small Intestines. |
| S, Stomach. | C, Large Intestines. |
| L, Liver. | P, Pancreas. |
| M, Pylorus. | N, Spleen. |
| | G, Gall-Bladder. |

whole of these movements are effected by the muscular powers of the alimentary canal itself. The main object of the alimentary canal is, most undoubtedly, the digestion of food, but this is not its only office, it is one of the great and important drains and sewers of the body, and into it is cast a large proportion of the used-up material of our frames, which would be hurtful if retained, particularly so in illness, such as fever. The fact is a cogent one, why at all times the bowels should be kept clear, and will explain to people, wherefore, during illness, even when food is not taken, and when they often think and say, "there can be nothing in a patient," the medical attendant is so careful to keep this great drain, the alimentary canal, clear of its noxious contents. (See ABDOMEN, ABSORPTION, DIGESTION, STOMACH, INTESTINES, CATHARTICS, ETC.)

ALISMA PLANTAGO, *a-lis'-ma plan'-ta-go*, water plantain. Sometimes called mad-dog weed. Belongs to the Nat. order *Alismaceæ*. It inhabits North America and Europe. The root was formerly considered efficacious in hydrophobia. An infusion of the dried leaves has been used with good effect in urinary diseases. Dose of the infusion, 4 to 6 ounces three times a day (See INFUSION); of the powdered leaves, 1 or 2 drams. The fresh powdered leaves produce vesication.

ALKALI, *al'-ka-li* [Arab. *al-kali*, soda], a name applied to a class of bodies which neutralizes acids, more or less perfectly, and thus forming by the combination a salt that differs from either of its components. They are characterized also by their acidity and caustic property, and by their action on vegetable colors. Nitrate of potash or saltpetre is a compound of potash and nitric acid. The ancient chemists included only three substances under this name—vegetable alkali, or soda; mineral alkali, or potash; and volatile alkali, or ammonia. To these, modern chemists add three alkalis proper—lithia, cæsia, and rubidia, and the alkaline earths—lime, strontia, baryta, magnesia, and a number of others too rare to need mention. With the exception of ammonia, these alkalies are all oxides of metals, called alkaline and alkaline-earth metals. The pure form of these oxides is called the caustic state, from the burning properties possessed by them all when not combined with any acid. When they are in combination with carbonic acid, which is a very weak acid, they are said to be in their mild form, and still preserve, in a minor degree, many of their characteristics as alkalies. Many vegetable substances—such as bark, opium, nightshade, and others—possess crystalline principles which, from behaving like alkalies, have been named alkaloids. Quinine, morphine, and atropine, are examples of these. Most of these form salts with acids; for instance, we have disulphate of quinine, acetate morphine, and so on. In Medicine,

alkalies and their carbonates, when taken internally, act chemically in counteracting or neutralizing acidity in the stomach or bowels. When absorbed into the system, they serve to diminish acidity of the secretions. They tend, also, to allay irritation, and are thus useful in certain kinds of cutaneous eruptions; but their frequent use is injurious. (See POTASH, SODA, AMMONIA, ETC.)

ALKALINE BATHS. (See BATHS.)

ALKALIS, POISONING BY, *al'-ka-lize*. The alkalis are: Potash, soda, and ammonia, or common smelling-salts, with their principal preparations—pearlash, soap lees, liquor potassæ, nitre, sal prunella, harts-horn, and sal volatile. Alkalis are seldom taken or given with the view of destroying life. They may, however, be swallowed by mistake.

Symptoms produced in those who have swallowed them: There is at first a burning, acrid taste in, and a sensation of tightness round the throat, like that of strangling; the skin touched is destroyed; retching, mostly followed by actual vomiting, then sets in; the vomited matters often containing blood of a dark brown color, with little shreds of flesh here and there, and always changing vegetable blue colors green. There is now great tenderness over the whole of the belly. After a little while, great weakness, with cold, clammy sweats, a quick weak pulse, and purging of bloody matters, takes place. The brain, too, mostly becomes affected.

Treatment.—Give two tablespoonfuls of vinegar or lemon-juice in a glassful of water every few minutes until the burning sensation is relieved. Any kind of oil or milk may also be given, and will form soap when mixed with the poison in the stomach. Barley-water, gruel, arrow-root, linseed-tea, etc., are also very useful, and should be taken constantly, and in large quantities. If inflammation should take place, it is to be treated by applying leeches and warm poppy fomentations to the part where the pain is most felt, and giving two tablespoonfuls of the following fever-mixture every few hours: Mix a dram of powdered nitre, 2 drams of carbonate of potash, 2 teaspoonfuls of antimonial wine, and a tablespoonful of sweet spirits of nitre, in half a pint of water. The diet in all these cases should only consist of arrow-root or gruel for the first few days, and then of weak broth or beef-tea for some time after. When very strong fumes of smelling-salts have in any way been inhaled, there is great difficulty of breathing, and alarming pain in the mouth and nostrils. In this case let the patient inhale the steam of warm vinegar, and treat the feverish symptoms as before. (See POISONS AND THEIR ANTIDOTES.)

ALKALOIDS, VEGETABLE, *al'-ka-loidz* [Arab. *alkali*, Gr. *eidos*, likeness]. The discovery of these substances is one of the most remarkable

of modern chemistry. They are all salifiable bases, found in various vegetable substances, and are similar in their actions to the mineral alkalis mentioned above, uniting with acids to form salts. They are violent poisons, highly nitrogenous, sparingly soluble in water, but more so in alcohol and dilute acids. They are prepared by boiling the substance containing them in dilute hydrochloric acid, neutralizing by a mineral alkali when the alkaloid is precipitated in an insoluble form. The following is a list of the principal vegetable alkaloids, and the substances from which they are derived. They are of the greatest value in Medicine, the exhibition of the fraction of a grain being attended with the most marked curative results. They are often found in books with the termination *ine* instead of *ia*.

Morphia, from opium.
 Quinia } from Peruvian bark.
 Cinchonia }
 Strychnia, from nux vomica.
 Veratria, from hellebore.
 Atropia, from belladonna.
 Nicotia, from tobacco.
 Aconitia, from aconite.

ALLIUM, *al'-le-um* [Lat. *garlic*], in Botany, a genus of plants belonging to the Nat. order *Liliaceæ*, the lily tribe. Many species are very familiar plants, being largely cultivated for the sake of their nutritious and piquant bulbs; such are *Allium Cepa*, the onion; *A. sativum*, the garlic; *A. Porrum*, the leek; and *A. ascalonicum*, the shalot. All the species are characterized by a strong, and, to most people, an extremely disagreeable odor. The substance which gives the garlic and onion their pungent smell and flavor is a compound oil, called by chemists *sulphide of allyle*. In America and England the onion is used much more frequently than any other species. In France the garlic is held in great esteem, and employed to flavor almost every savory dish. In Spain and Portugal the two bulbs are employed rather as every-day articles of food than as mere condiments; while the Arab, Moorish, and Ethiopian tribes are even greater devourers of garlic and onions than the inhabitants of the Peninsula. The different species of allium, when cultivated in warm climates, lose much of their pungency; hence the mild flavor of the Spanish onion. The bulb of the common garlic, *Allium sativum*, though rarely used by the medical practitioner, is known to have properties which might render it a valuable agent in the treatment of some diseases. When taken internally, it is tonic, stimulant, expectorant, and diuretic. Externally it acts as a local irritant and resolvent, and is employed as an anti-spasmodic liniment for infantile convulsions. (See *ONION*.)

ALLOPATHY, *al'-lop'-a-the* [Gr. *allos*, other, or different, and *pathos*, disease], is a term used to denote the method of curing disease by means of remedies which are believed to act contrary to the nature of the disease sought to be cured. It is applied to the ordinary system to distinguish it from Homœopathy.

ALLSPICE, *awl'-spice*, the dried unripe fruit of the *Eugenia Pimenta*, a plant of the myrtle order. It is much used as a spice, and is thought to combine the flavors of cinnamon, cloves, and nutmegs; hence its common name. It is sometimes called Jamaica pepper, from the island in which it is chiefly cultivated, and sometimes pimento. It is an aromatic stimulant and tonic, and is used in dyspepsia, flatulence, etc. The tincture of allspice has been recommended as a local remedy in chilblains. Dose of powder, 10 to 30 grains; dose of tincture, 1 to 2 drams; dose of the oil, 2 to 5 drops.

ALMOND. (See AMYGDALUS.)

ALMOND EMULSION, *ä'-mund e-mul'-shun*, useful for removing sunburns. Ingredients:

Half ounce of blanched bitter almonds.

Half pint soft water.

Pound the almonds in a mortar, and beat them well into the water with a silver fork. When thoroughly beaten strain off the liquid and bottle it for use. Use it as a lotion.

ALMOND PASTE, used to remove freckles, and make the skin soft and delicate. Ingredients:

One ounce of bitter almonds.

One ounce of barley flour.

A little honey.

Blanch the almonds, and reduce them in a mortar to a fine powder; add in the barley flour, and mix all into a smooth paste by adding the proper amount of honey. Use as a salve.

ALNUS RUBRA, *al'nus ru'-bra*, tag alder, smooth alder, Nat. order *Betulaceæ*, well-known shrub, growing on the borders of ponds and rivers, and in swamps. The bark is the part used in Medicine. It is alterative, emetic, and astringent. It is useful in scrofula, secondary syphilis, and some forms of cutaneous disease. The inner bark of the root is emetic. The decoction of the bark of the shrub may be used in doses of 2 or 3 ounces, three times a day. (See DECOCTION.)

ALOE, *al'-o* [Lat.], in Botany, a genus of monocotyledonous plants, belonging to the Nat. order *Liliaceæ*, the lily tribe. There are several species, all natives of warm climates, but capable of being cultivated in colder regions as ornamental garden plants. The leaves are succulent, and edged with spines; they yield the juice which, when inspissated,

constitutes the bitter drug called aloes. The flowers are usually red, growing in a bunch at the top of the stem.

ALOES, *al'-oze*. Aloes, a drug used medicinally in small doses as a tonic, and in larger doses as a purgative and an emmenagogue. It is the inspissated juice of the leaves of various species of aloe. There are several commercial species imported, but the origin of some is not accurately determined. Barbadoes aloes is obtained from the species *Aloe vulgaris*. Both socotrine and hepatic aloes are probably prepared from *A. socotrina* and *A. purpurascens*; for the difference between the two kinds may be accounted for by a difference in the mode of treating the juice. Thus, when the juice from the species *A. socotrina* is inspissated by artificial heat, the product resembles socotrine aloes; but when it is allowed to dry up without the aid of artificial heat, it resembles hepatic aloes. Cape aloes is chiefly obtained from *A. piscata*; Indian aloes from *A. indica*; but the varieties known as horse or caballine aloes, Mocha aloes, and Curacoa aloes, have not been traced to their respective sources. Aloes acts chiefly on the lower bowels, where costiveness is the oftenest situated. It is employed in a variety of forms, as extract, decoction, tincture, wine, powder, pills, simple or in composition with iron, myrrh, or assafœtida. It is also used in the form of enema for dislodging small worms from the rectum. The action of aloes is certain, and except in peculiar cases, easy and safe. Three or four pills will generally cure common headache. Aloes is one of the most potent remedies in female obstructions. In pregnancy, and where any tendency to piles exists, the use of aloes is better avoided. The action of the medicine upon the stomach is, in small doses, tonic; but, as said before, the principal effect of aloes is upon the lower bowels, the movements of which it appears to excite, without increasing the discharges; it seems to act similarly to the bile, and when that is deficient, as a substitute for it. The preparations into which aloes enters are generally better provided ready made. Of the pills, the simple aloetic, the compound rhubarb, and the compound colocynth are the best; the last is the most active. Of any of these, one or two pills, three grains each, may be taken at bed-time as an average dose. The compound decoction of aloes is a most excellent form, and may safely be given when quick action is required, in 1 to 2 ounce doses. For old people, it often answers well, and is preferable to pills. It is made as follows: take of aloes, saffron, and myrrh, bruised, of each one dram and a half; extract of liquorice, 7 drams; carbonate of potash, 3 scruples; water, 30 fluid ounces. Mix the whole together, and boil down to 20 fluid ounces. Filter, and add compound tincture of cinnamon, 7 fluid ounces. Aloetic purgatives may be taken habitually for a long time without an increase

of the dose being required; the continued use, however, may induce piles. Dose of fluid extract, 10 to 20 drops; dose of tincture, 1 to 2 teaspoonfuls. (See ALOIN.)

ALOIN, *al'-oin*. Aloin is the active principle of aloes. It operates invariably as a cathartic, in the dose of 1 or 2 grains, and occasionally in half grain doses. (See ALOES.)

ALOPECIA. (See BALDNESS.)

ALTERATIVES, *al'-ter-a-tivz* [Lat. *altero*, I change]. Alteratives are medicines which gradually change the varied disordered actions of the body, and restore it to its healthy or normal state, without producing any sensible effect when taken. There are not many medicines which may be regarded as solely alterative, but there is scarcely a single drug, however violent in its operation in large doses, which may not, by the proper regulation of the dose, or by its mode of preparation, be converted into an alterative. Mercury, arsenic, and antimony, may be taken as examples of this fact.

Alteratives are especially applicable to chronic diseases and passive derangements; those of an acute character requiring a more active class of remedies. In all chronic diseases, it may be laid down as a general rule, that nothing is to be gained, and that much permanent mischief may result, from the employment of violent remedies. When medicines are given with a view to their operating as alteratives, they generally require to be administered in small doses, and to be persevered in for a lengthened period, namely, for weeks, and perhaps months; the practitioner being satisfied with witnessing, at considerable intervals, an improvement, however small, in the state of the patient. A careful regulation of the diet, and a strict attention to the laws of health are indispensable auxiliaries to an alterative course of medicine. Without these, remedies can be of little avail; and though medicinal alteratives are often indispensable, still, temperance in eating and drinking, exercise, attention to the state of the skin, and to the ventilation of sleeping rooms especially, are alteratives which every one may employ. A course of medicinal alteratives should generally be left to medical direction. (See MERCURY, IODIDE OF POTASSIUM, BERBERIS AQUIFOLIUM; CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF, ETC.)

ALTHÆA, *al-the'-a* [Gr. *altheo*, I heal], the marshmallow, a genus of plants belonging to the Nat. order *Malvaceæ*. The species *A. officinalis*, the common marshmallow or wymote, is an indigenous perennial, growing in salt marshes near the sea, and on the banks of rivers, blossoming during August and September. Its flowers, which are rather large and rose-colored, are arranged, three or four together, on axillary stalks. The leaves are hoary, green, odorless, soft, and downy, having

a mucilaginous taste. The whole plant abounds in mucilage, particularly the root, which is used in medicine. In France, marshmallow is a favorite demulcent. The famous *pâte de Guimauve* is composed of the substances obtained from the root, with gum-arabic, sugar, and white of egg. Buchner states that the chief constituents of the marshmallow root are a fatty oil, starch, glutinous matter, uncrystallizable sugar, altheine, and mucilage. Its chief principle, *altheine*, is identical with *asparagine*. It is crystallizable, odorless, and almost tasteless. In Medicine, this plant is used as a demulcent in visceral inflammations and affections of the mucous membrane, as bronchitis, diarrhœa, etc. It is also sometimes used as an emollient in the form of a poultice or a fomentation for external sores.

ALUM, *al'-um* [Lat. *alumen*], a salt, consisting of sulphate of alumina in combination with sulphate of potash, soda, or ammonia. Alum is obtained by submitting alum-shale, which consists of alumina, iron pyrites, and coaly matter, to the action of fire in enormous heaps for one or two years. During the combustion, the sulphur of the iron pyrites (sulphide of iron) combines with the oxygen and alumina, forming sulphate of alumina, which is dissolved out of the cooled mass by water. This solution is then converted into alum, by the addition of either sulphate of potash or sulphate of ammonia, the latter being most generally used on account of its cheapness. The principal sources of alum-shale are at Hurlet and Campsie, near Glasgow, and at Whitby, in Yorkshire. Alum is also manufactured in great quantities by Spence's process from various materials derived from coal and from the coal strata. Ammonia alum is more valuable than potash alum, from containing 11.90 per cent. of alumina, which is the active ingredient, while potash alum contains but 10.82 per cent. It has taken the place of the other in the last edition of the British Pharmacopœia. Alum acts chemically as an astringent on the animal fluids and tissues. It is used externally or internally, and serves to check hemorrhage, diminish secretions, etc.; hence it is frequently given in diarrhœa. When taken internally in large doses it produces nausea, vomiting, purging, etc. Usual dose, from 10 to 20 grains. It produces contraction or corrugation of the tissues, and hence is useful as a gargle, a wash, or an injection. It is one of the most successful remedies that have been employed in lead colic. Alum is soluble in about 18 parts of water at 60°. In the form of powder it is slightly caustic. When pure it is without odor, colorless, of a sweetish, acidulous, and powerfully astringent taste. Muslin dipped in a solution of alum is rendered incombustible.

In bleeding, especially from the nose, lint dipped in a strong solution of alum, and applied to the part as a plug, will often stop the flow, or in

the case of leech bites, the powder of burnt alum may be sprinkled upon the puncture. In case of wounds—where no large blood-vessel has been cut—the bleeding may be stopped by thoroughly rinsing the wound with a solution of powdered alum in half a pint of water. In the event of an individual being attacked, either with coughing up, or vomiting of dark blood, in the absence of medical assistance, alum may be given in doses of from 5 to 20 grains every two or three hours. In case of painters' colic, alum has recently been found of much advantage in doses of 10 to 20 grains every three or four hours.

A few grains of alum, agitated with the white of an egg form a coagulum, which put between two folds of muslin, is used with benefit to the bed sores of the sick. Powdered alum is a speedy emetic in tablespoonful doses, and is one of the best medicines for croup in teaspoonful doses (mixed in syrup), for a child a year old. Repeat till vomiting is produced. The best form of giving it internally is that of alum whey, made by adding 2 drams of the powder in a pint of hot milk, after which strain to separate the curd. Alum whey is an excellent remedy for chronic diarrhœa. Bathing the feet, arm-pits, etc., with alum water, prevents offensive sweating.

ALUM, COMPOUND SOLUTION OF; OR BATES' ALUM-WATER, is a powerful astringent lotion, composed of one ounce each of alum and sulphate of zinc, dissolved in one pint of boiling water and afterwards strained. It is used as a wash to old sores, and, diluted with rose-water, as an eye-wash and injection.

ALUM ROOT. (See *HEUCHERA AMERICANA*.)

ALUM WHEY. (See *ALUM*.)

ALVEOLAR, *al-ve'-o-lar*, belonging to the sockets of the teeth.

ALVEOLUS, *al-ve'-o-lus*, the socket of a tooth.

ALVINE, *al'-vin* [Lat. *alvus*, the belly], appertaining to the belly or bowels—as alvine discharges, concretions, etc.

AMADOU, *am'-a-doo* [Lat. *ad manum dulce*, soft to the touch], a spongy substance, generally known as German tinder, which can be ignited by a spark from a flint and steel. It is prepared by soaking thin slices of the fungi *Polyporus igniarius* and *fomentarius* in a solution of nitrate of potash (saltpetre), after they have been softened by beating with a mallet. Similar slices, not treated with the salt, are sometimes used in Surgery to give support to affected parts, and also to restrain hemorrhage. When impregnated with gunpowder, the prepared fungus forms black amadou.

AMALGAM, *a-mal'-gam* [Gr. *malagma*, that which is made soft], mercury mixed with any metal with which it will combine forms a pasty or fluid mass called an amalgam, and is, in fact, an alloy of mercury.

malgam for electrical machines is made by adding tinfoil in small pieces to mercury, until they form a paste.

AMARANTH, *am'-a-ranth*, princes' feather, red cockscomb, Nat. order *Amaranthaceæ*, an annual herb, growing from three to four feet high. It is a native of the middle states. It is an astringent. The decoction is highly recommended in menorrhagia, diarrhœa, dysentery, and hemorrhage from the bowels. It is also used as a local application to foul, indolent ulcers. The decoction may be drunk freely. (See DECOCTION.)

AMAUIROSIS, *am-aw-ro'-sis* [Gr. *amauiros*, obscure], is a blindness or obscurity of vision, proceeding from a diseased state of the optic nerve, or of that part of the brain in connection with it. It generally comes on gradually, with dimness or confusion of sight, variations of color, or the presence of floating objects called *spectra*. It is commonly occasioned by long-continued over excitement of the organs of vision, or by sudden exposure to a bright light, or it may proceed from a disordered state of the stomach. It is also sometimes hereditary. It may be permanent, or only temporary. It is owing to congestion or chronic inflammation of the nerves connected with sight. The appearance of the eye is unaltered beyond the dilatation of the pupil, which gives it a peculiar dark, deep look, but the expression is unmeaning. A person threatened with amauirosis, first observes in the daytime, dark moats or specks floating, as it were, before the sight, at first distinct from one another, but gradually becoming connected, and forming as it were, a thicker and thicker veil, as the sight becomes obscured. In the dark, the motes or specks frequently appear luminous. Sudden flashes of light appearing, is a symptom not unfrequent; there is usually pain in the eye and head. It must not be supposed, however, that every one who sees motes or specks, is becoming amauirotic, some persons have this peculiarity of vision, either habitually or whenever the stomach is disordered.

In addition to the causes above stated, amauirotic blindness may be the result of overfulness of blood, or of the contrary condition; of indigestion; sexual excess; hysteria; gout; over-nursing, etc.

Treatment.—*Amauirosis* is to be treated by depletion, by blood-letting or cupping in the back of the neck, behind the ears, or on the temples, by counter-irritants, as blisters or setons, by purgatives, and by mercury administered in frequent doses to the extent of affecting the gums. The eye is at the same time to be kept in a state of perfect repose. All stimulants should be avoided, unless there is evidence of extreme weakness. If the patient is a nursing female, the child must be weaned at once. A person threatened with amauirosis, should immediately submit himself to skilled advice.

Amaurosis or blindness coming on without obvious cause in a person of full habit of body, is always a grave symptom, and, as in such a case, every minute may be valuable, if medical aid cannot at once be got, six or eight leeches may safely be applied to the temples, an active purgative of 20 grains of jalap, and 4 or 5 of calomel is to be given at once, and after the leeches, cold applied to the head; perfect quiet being observed, and professional advice procured at the earliest moment possible.

AMBER. (See SUCCINUM.)

AMBROSIA, *am-bro'-zhe-a*, horseweed, bitter weed, ragweed, etc., Nat. order, *Asteraceæ*. Grows in low grounds and along streams, from Canada to the Gulf States. It is used among farmers for the "slabbers" in horses. It is stimulant, astringent, antiseptic; and useful as an injection in leucorrhœa and gleet. It is an excellent application for mercurial sore mouth. Dose of decoction, 1 to 2 ounces three or four times a day. (See DECOCTION.)

AMBULANCE, *am'-bu-lanse* [Lat. *ambulo*, I walk], a term derived from the French, and applied to those moving hospitals which accompany every army, or division of an army, in the field, furnished with all the requisites for the succor of the sick or wounded. It is also applied to the wagons or carts provided for conveying the wounded from the field of battle. The latter are termed by the French *ambulances volantes*, and were first introduced in 1793, by Larrey, the celebrated French military surgeon.

AMENORRHEA. (See MENSTRUATION.)

AMERICAN HELLEBORE. (See VERATRUM VIRIDE.)

AMMONIA, VOLATILE ALKALI, ALKALINE AIR, AMMONIACAL GAS, SPIRITS OF HARTSHORN, *am-mo'-ne-a*, is a gaseous compound, possessing the properties of the alkalis proper—potash and soda. It was known in a liquid form long before the gas itself was discovered. This was first done by Priestley, in the year 1774, who named it alkaline air. He procured it from sal-ammoniac; whence its name. Ammonia is composed of three parts of hydrogen to one of nitrogen, but it cannot be formed by the direct combination of these elements. When, however, nascent hydrogen and nitrogen are eliminated by any chemical action, a portion of ammonia is always found in the resulting compound. It is also formed during the distillation of coal in gasworks, the ammoniacal liquor produced in this way being the great source of ammonia for commercial purposes. Ammonia is easily liquefied by the combined action of a pressure of $6\frac{1}{2}$ atmospheres and a temperature of 32° . By submitting this liquid to the action of solid carbonic acid, solid ammonia is produced. Ammonia, when pure, is a transparent colorless

gas, with a strong alkaline taste, and a pungent, suffocating odor. It does not support either combustion or life, and inflames with difficulty. It is readily absorbed by water, which takes up 670 times its own volume of the gas, forming the liquor ammoniæ of the chemist, or liquid ammonia, as it is generally improperly called. Ammonia is found in very small quantities in the air, being evolved during the decomposition of most animal substances, more especially excrements and urine. Ammonia, diluted, and in proper doses, acts upon the system as an alkali and stimulant. It is also used by inhalation through the nostrils in cases of fainting, hysteria, epilepsy, cephalagia, etc. Externally it is irritant and caustic; internally, in large doses, it produces irritation of the stomach, nausea, vomiting, and death. It is also fatal if inhaled alone. In the case of poisoning by the vapor of ammonia, the vapor of hot vinegar should be inhaled. Ammonia forms an infinite number of salts with the different acids, most of them similar in their properties to the corresponding salts of potash and soda.

AMMONIA, SOLUTION OF ACETATE OF, OR SPIRIT OF MINDERERUS, is composed of 10 fluid ounces of acetic acid, $3\frac{1}{4}$ ounces of carbonate of ammonia, and $2\frac{1}{2}$ pints of distilled water. In doses of from 2 to 6 teaspoonfuls it is given as a refrigerant in fevers and inflammatory diseases. As a diaphoretic, its operations should be promoted by the use of tepid diluents and external warmth. Diluted with water, it is also sometimes used as a lotion to inflamed or bruised parts.

AMMONIA, BENZOATE OF, is composed of 3 fluid ounces of solution of ammonia, 2 ounces of Benzoic acid, and 4 fluid ounces of distilled water. It is used as a diuretic, and in inflammation of the bladder, to counteract an alkaline state of the urine. Dose, from 10 to 20 grains.

AMMONIA (CARBONATE OF), SAL VOLATILE, OR SMELLING SALTS.—The sesqui-carbonate of ammonia is a volatile and pungent ammoniacal salt, produced by submitting a mixture of sulphate of ammonia or chloride of ammonium and carbonate of lime to sublimation. A solution of carbonate of ammonia, consisting of $\frac{1}{2}$ ounce, dissolved in 10 fluid ounces of distilled water, is used as an antacid, stimulant and diaphoretic, and in large doses as an emetic. Dose, 5 to 15 grains; as an emetic, 30 grains.

AMMONIÆ AQUA, AMMONIA (LIQUID), AMMONIÆ LIQUOR, AMMONIA (SOLUTION OF).—The solution of gaseous ammonia in water is called by all the above names. It is a colorless transparent liquid, having a characteristic pungent smell, a burning caustic taste, and a strong alkaline reaction. At its greatest strength, its specific gravity is .850, and it can only be kept in closely stoppered bottles. It is made by passing the gas through distilled water kept near freezing-point by means of ice. It

is of great use in the laboratory as a reagent, dissolving many oxides and salts insoluble in water. It is employed in Medicine as a stimulant. There are two degrees of strength used—the liquor ammoniæ fortior of .850. and the ordinary liquor ammoniæ, or spirits of hartshorn, of .960. Mixed with oil, with which it forms a soap, it is used as a rubefacient, under the name of soap-liniment. Dose, 10 to 20 drops, diluted with water.

AMMONIA, SOLUTION OF CITRATE OF, is composed of 3 ounces of citric acid, $2\frac{3}{4}$ fluid ounces of strong solution of ammonia, and 1 pint of distilled water. Its properties and uses are similar to those of solution of acetate of ammonia, but it is more pleasant to the taste. Dose, 2 to 6 teaspoonfuls.

AMMONIA, HYDROCHLORATE, OR MURIATE OF, CHLORIDE OF AMMONIUM, OR SAL AMMONIAC, is a compound of hydrochloric acid and ammonia, NH_4Cl . It is used as a diaphoretic, diuretic, purgative, and emetic. Externally, when dissolved along with an equal quantity of nitre, it forms an excellent refrigerant lotion. It is also used as a discutient for dispelling tumors.

SPIRITS OF AMMONIA are stimulant and antispasmodic. Ammonia is adapted for speedily rousing the action of the vascular and respiratory systems, and for the prompt alleviation of spasms. As an internal and external remedy to obviate the sequelæ of the bite of rabid animals, venomous insects and reptiles, its power is well known. By way of inhalation, it is administered when it is desired to make a strong impression on the nervous system, in cephalagia, hemicrania, and faintness or collapse. Dose, 30 to 60 drops, diluted with water.

AMMONIA, AROMATIC SPIRITS OF, stimulant and alexipharmic. Medicinal properties bear a close resemblance to those of the simple spirits. It is a weaker preparation, and has the preference with physicians on account of its grateful taste and smell. In languor, syncope, hysteria, and nervous debility, it proves very serviceable. In the flatulent colic of children, 2 to 5 drops in milk, it affords more speedy relief than any other remedy. In sick headache, heartburn and acidity of the primæ viæ, it proves speedily effectual. Dose, 30 to 60 drops, diluted with water.

AMMONIACUM, *am-mo-ni'-a-kum*, a fetid gum resin, which exudes from the stem of an umbelliferous plant known to botanists as *Dorema ammoniacum*, growing in Persia and the adjacent parts of Asia. It is occasionally prescribed as an expectorant, and is applied externally to promote the absorption of tumors and chronic swellings of the joints. Dose, from 10 to 20 grains.

AMMONIUM, *am-mo'-ne-um*. The existence of a hypothetic com-

pound metal called ammonium, and having the constitution NH_4 , has been assumed as the only method of explaining the perfect analogy that exists between the salts of ammonia and those of the various metals. An equivalent of ammonia united to an equivalent of water, is supposed to form the oxide of this metal, $\text{NH}_3 \times \text{HO} - (\text{NH}_4)\text{O}$, corresponding to potassa, the oxide of potassium, KO . (See AMMONIUM, IODIDE OF.)

AMMONIUM, IODIDE OF, alterative, tonic, anti-syphilitic, and sometimes acting as a diuretic. It closely resembles the iodide of potassium, but is more powerful.

Dr. Dunglison observes: "It was introduced into medical practice by M. Bielt, of Paris, as a valuable therapeutical agent in certain diseases of the skin. Several successful cases of its employment in lepra and psoriasis, by M. Bielt, are given by Dr. Pennoek."

Dr. Waring remarks: "It appears especially adapted to syphilitic affections of the skin. In syphilitic affections it was first employed by Dr. B. W. Richardson, who reported favorably of its operation. More recently it has been systematically tried by Dr. Gamberini, who considers: 1. That it is suitable for all cases in which the iodides of potassium and sodium are employed. 2. That it leads to a rapid cure. 3. That there is great tolerance of the remedy. 4. That employed in friction with olive oil (3 grains to 2 ounces of the oil), it causes the disappearance of nocturnal syphilitic pains. 5. That under its internal use indurations consecutive of chancre, disappear, as do also indurated glands of the groin. 6. That arthralgia, rheumatoid affections, periositis, enlarged glands, and papulo-vesicular eruptions, are forms of syphilis most readily cured by this salt. 7. The signs of intolerance are a sense of burning in the throat, and heat of the stomach, but these rapidly disappear on the suspension of the medicine for a couple of days. It seems well worthy of a more extended use. In scrofula, attended with glandular enlargement, in incipient consumption and in chronic rheumatism, Dr. Richardson used the iodide with advantage. In enlarged tonsils, he found a solution of iodide of ammonium half a dram, in glycerine one fluid ounce, very efficacious. It was applied at night with a camel's hair brush." Dose, 1 to 3 grains.

AMOMUM, *ā-mo'-mum*, in Botany, a genus of plants belonging to the Nat. order *Zingiberaceæ*, the Ginger family. Several species have aromatic seeds, which are used medicinally and as spices in many parts of the world. *A. melegueta* is a native of Western Africa, and yields the so-called grains of Paradise, or Guinea pepper, used in this country in veterinary medicine, and for giving pungency to beer, wine, spirits, and vinegar. Most of the fruits called cardamoms, so largely employed in medicine as stimulants, are produced by plants included in this genus;

thus *A. cardamomum* yields the round cardamoms; *A. maximum*, the Java; *A. Korarima*, the korarima and *A. globosum*, both the large and small round China cardamoms.

AMPELOPSIS, *am-pe-lop'-sis*, American ivy, Virginia creeper, Nat. order *Nitaceæ*. Grows throughout the United States. The bark and twigs are the parts used. It is alterative, tonic, astringent, and expectorant. It is used in the form of syrup in bronchitis and other pulmonary complaints. Dose of syrup or decoction, 2 ounces three or four times a day.

AMPUTATION, *am-pu-ta'-shun* [Lat. *amputo*, I prune or lop off], in Surgery, is a term employed to denote the operation of cutting off a limb or some part of the body. The human frame is so constituted that if one member be diseased, the whole body suffers with it; and frequently the life of an individual may depend upon the removal of an injured or diseased member. The ancients, while they saw the necessity of cutting off a limb, shrank from the operation with dismay, for they knew of no means of stopping the hemorrhage but red-hot irons and boiling oil of resin; and hence, besides the suffering entailed upon the patient, their operations were seldom successful. The advance of modern surgery is here very marked, not only in the improved methods and appliances for operating, but, from their increased knowledge of the human body, surgeons are now able to determine with far greater accuracy when an operation is necessary, or, by a minor operation, are able frequently to save a limb, little or at all impaired, which, even half a century ago, would have been ruthlessly sacrificed; while the recent introduction of anæsthetics has been of inestimable value to the patient. The term is usually confined to operations on the limbs or extremities, for operations on other parts the term "excision" is more commonly used. An amputation may be performed by what is termed the circular, the double-flap, or the single-flap operation. In proceeding to amputate, the patient is first placed in a convenient position, and the main artery is compressed by the tourniquet (see *TOURNIQUET*) or by the hand of a skilled assistant. The circular operation is performed by first detaching the skin a short distance below where the amputation is to be made. It is then drawn upwards, and the muscles divided down to the bone, which is then sawn through. The arteries are then seized with a small forceps, drawn slightly out, and secured by a thread torsion, or acupressure (q. v.), after which the skin is brought over the wound, and either stitched or held together by strips of adhesive plaster. The double-flap operation differs from the above, in that the skin and muscles are cut down in a slanting manner, on opposite sides, so as to form two flaps, which are then drawn up, and the knife carried round the bone, dividing any flesh

that may still be adhering to it; after which the surgeon saws the bone. It is objected to this method, that it makes a greater wound, and that the arteries, from being cut obliquely, will be less securely tied; but it is in favor with many, who maintain that there is little force in these objections, and that they are more than compensated for by the greater protection afforded by the flaps to the bone. The single-flap operation is seldom resorted to, unless where a portion of the limb is destroyed on one side, and it becomes necessary to take the flap from the opposite side.

AMUSEMENT. (See EXERCISE, PLEASURE, RECREATION, ETC.)

AMYGDALIN, *a-mig'-da-lin*, a white crystalline solid, found in bitter almonds, peach-kernels, and laurel-leaves. By the action of the alkalis, amygdalic acid may be formed. Sweet almonds contain no amygdalin. (See AMYGDALUS.)

AMYGDALUS, *a-mig'-da-lus* [Gr. *amygdale*, almond], a genus of plants belonging to the Nat. order *Rosaceæ*. The typical species is *Amygdalus communis*, the almond-tree, of which there are two varieties; namely, *A. communis* var. *dulcis*, yielding sweet almonds, and *A. communis*, var. *amara*, which produces bitter almonds. The almond-tree grows wild in Syria and other parts of Asia, also in northern Africa, and is extensively cultivated in the southern parts of Europe. In England it is grown more for the sake of its early spring blossoms than for its fruit, which seldom comes to perfection. A fixed oil, commonly known as oil of almonds, is obtained by expression from sweet almonds, and the residue, which contains gum, vegetable albumen, and emulsion, is sold under the name of almond-powder. Bitter almonds yield a similar oil. They also contain emulsion, and, in addition to this and the other constituents of sweet almonds, a nitrogenous substance, called *amygdalin*. When bitter almonds are moistened with water, the emulsion and amygdalin mutually react upon each other, and form a poisonous volatile oil, which is known as the essential oil of bitter almonds, and which is used, in small quantities, for flavoring custards and pastry, also for scenting soaps. *Amygdalus persica* is the peach-tree of our gardens, and a variety of the same species produces the nectarine. Peach-blossoms have been employed in Medicine as a vermifuge, and the kernel of the fruit may be used for the same purposes as the bitter almond. (See AMYGDALIN.)

AMYL, *am'-il* [$C_{10}H_{11}$], a compound radical, discovered by Frankland, by acting on iodide of amyl with zinc. It is an oily liquid, boiling at 311° , and homologous with methyl, ethyl, etc. Like them, it forms an oxide or ether, and a hydrated oxide, or alcohol.

Amylic alcohol, $C_{10}H_{21}O_2$, is formed during the distillation of common alcohol from grain or potatoes by the decomposition of the starch

contained in them; hence its name. The fusel, or fousel oil of potato-spirit, consists almost entirely of amylic alcohol. It is this substance that gives to many spirits their noxious properties. It may be easily recognized by rubbing a few drops of the spirit on the hands; the vinous alcohol and water evaporate first, leaving the amylic alcohol behind, which is easily recognized by its characteristic odor. It gives to spirits a fiery acrid taste, and is most commonly found in inferior rum and whiskey. When distilled with dilute sulphuric acid and bichromate of potash, it yields valeric acid, the salts of which are much used in Medicine. Heated with dry phosphoric acid, a hydrocarbon, called amylene, is formed, which has been much used as an anæsthetic.

AMYLUM, *am'-e-lum*, starch of wheat. (See STARCH.)

ANA. (See A.)

ANACYCLUS, *an-a-si'-klus* [Gr. *ana*, in the form of, and *kyklos*, a circle], in Botany, a genus of plants belonging to the Nat. order *Compositæ*. The root of *A. pyrethrum*, pellitory of Spain, is employed in Medicine as an energetic local irritant and sialagogue, its properties depending on the presence of a volatile oil. (See SIALAGOGUES.)

ANÆMIA. (See CHLOROSIS.)

ANÆSTHESIA, *an-es-thé-ze-a* [Gr. *a*, not, *aisthesis*, perception], loss of the sense of touch. Diminished or lost sense of feeling. When numbness occurs without obvious pressure, it shows a tendency to a paralytic state, and should be watched. There is sometimes a total loss of the sense of touch, mostly partial, but sometimes general, over the whole surface of the body. (See ANÆSTHETICS.)

ANÆSTHETICS, *an-es-thet'-iks* [Gr. *a*, privative, and *aisthanomai*, I feel]. Anæsthetics are those agents which produce insensibility to pain in the whole or part of the human body, usually by acting on the nervous system. The most familiar instance of anæsthesia is that produced by an overdose of alcohol, in the case of drunken people, who become utterly insensible to pain. Nitrous oxide, or laughing-gas, was the first anæsthetic which was used for the production of insensibility to pain under surgical operations, having been first suggested by Sir H. Davy, and first employed by Dr. Wells, an American, in 1844. In 1846 Dr. Morton, of Boston, a former pupil and partner of Dr. Wells, introduced sulphuric ether as an anæsthetic, and it came rapidly into use. In November, 1847, the anæsthetic effects of chloroform were discovered by Sir James Y. Simpson, and it at once came into general use.

CHLOROFORM.—The injurious effects attributed to it are so few and far between as to be as nothing compared with the benefits which it has conferred. Countless lives have been saved by it, and operations have been performed under its influence, that surgeons would not have dreamt

of attempting before its introduction. Various other agents have been used as anæsthetics. Indeed there is reason to believe that they were not unknown to the ancients, and that mandragora was used for this end. In China, a preparation of hemp or ma-yo is said to have been used 1,500 years ago to annul pain in surgical operations. The effects of cold to produce insensibility to pain are well known, and hence local anæsthesia is frequently brought about by some freezing mixture, as pounded ice and salt. Ether spray is also used for the same purpose. A new anæsthetic, chloral, has of late years been introduced.

Chloroform should never be given but by a duly qualified person, and certainly should never be administered by any one to himself. There are a great number of chloroform "inhalers" used at present, but the fact is that none of them are to be recommended, and that the simplest method is the best. The patient ought to lie down, to keep his eyes shut, and breathe freely; any tight article of dress round the throat or chest should be loosened; about 2 drams of chloroform should be sprinkled over a folded towel, which is to be lightly applied over the patient's face, and afterwards, when this is partially evaporated, 1 dram should be added from time to time, till insensibility is produced. How much chloroform should be given can only be determined by an experienced person, who tests the sensibility of his patient by opening the eye and touching it, by raising the arms and letting them fall again; thus judging if the muscles are relaxed; or by otherwise testing his patient's power. Many patients, before getting quite under the influence of chloroform, struggle violently, and require to be restrained by one or two assistants, but the administration should be continued till this is overcome, which it speedily will be, the patient then generally passing into complete insensibility. The uninitiated ought to know that patients often shout, and even appear to suffer great pain, when they are quite unconscious, and that there are great differences exhibited by different people in the way in which they are affected by the drug. When it is desired to relax the muscles entirely, as, for instance, to allow of the reduction of a dislocation, it will be necessary to produce even a more decided effect than is required for a painful operation, as the amputation of a limb, the removal of a tumor, etc. On such occasions, the administrator of the chloroform most attentively and momentarily watches the condition of his patient. It cannot be too emphatically repeated that care and experience are the two great requisites in the giving of chloroform. Another mode, which deserves notice on account of its simplicity, and which is in great favor, though, in the writer's opinion, inferior to the above-mentioned method, is to protect the nose of the patient by smearing a little glycerine or cold cream over it, then to spread a handkerchief

over the face, and drop the chloroform, drop by drop, over the part just below the nostrils. Bottles are to be had with stoppers adapted for this dropping process. This has certainly the advantage of being a more economical method, but it is not so safe, nor so convenient as the other. Should it unfortunately happen that a person has inhaled too much, or at all events does not appear to rally from the stupor, or should he, during the administration cease to breathe, with a low or absent pulse, livid lips, and all the symptoms of suspended animation, then no time is to be lost, for on the energy and promptitude displayed within the next few seconds or minutes will depend, in all probability, the issue of the case. The head must be kept low, the face should be slapped smartly with a towel dipped in cold water, ammonia at once applied to the nostrils, and artificial respiration commenced, by pressing upon the chest, so as to expel the air, and then allow it to expand again of itself. This should be repeated at the rate of about thirty to forty times per minute (nearly double the ordinary rate of respiration), the surface of the body over the region of the heart being rubbed with a brush, or with the hand, warm blankets, or bottles, or hot bricks applied to the hands and feet, and the galvanic battery (which ought always to be in readiness where chloroform is frequently given) should be applied, to promote artificial respiration, in conjunction with the means mentioned above. The restoration of the pulse, the re-appearance of the healthy color of the lips and countenance, and, above all, the breathing of the patient, or his showing any sign of returning consciousness, will be hailed with joy, and if there still remains great prostration, a little brandy and water, or wine, may be given at intervals.

As a rule, it may be said that no patient with disease of the brain, or with organic heart disease, or with much obstruction to the breathing, from disease of the lungs, ought to have chloroform. It should also be given with extreme caution to young infants (in whom insensibility is very quickly produced by using a very small quantity) to persons advanced in life, and to persons of feeble vital power.

It need scarcely be said that many operations which formerly were very troublesome of performance, especially upon children, are now rendered comparatively easy, by the use of chloroform, many operations also requiring great nicety of manipulation, and almost impossible, without the co-operation of the patient—a co-operation never to be obtained in the case of children, and even of some grown-up people—can be performed with the greatest ease, and without any trouble on the part of the surgeon.

Finally, it would be impossible to omit mention of the great value derived from the use of chloroform in child-bed, and more especially in

those cases of great difficulty and urgency occurring every now and then in the experience of all practitioners. For its introduction and use in this, as well as in all other departments of Medicine, the world is indebted to the distinguished professor of midwifery in Edinburgh, Dr. Simpson, whose genius has devised, and whose indefatigable energy has brought into general use this, which must rank first among the many improvements he has brought to bear upon the practice of Medicine and Surgery.

Although in England chloroform has been exclusively used as an anæsthetic, in America, sulphuric ether, which was the first anæsthetic used anywhere, and was superseded by chloroform, is still much employed, being by some medical men considered safer. Many other modes of producing anæsthesia have been proposed from time to time, such as the inhalation of carbonic acid, of the vapor of turpentine, and of the fumes produced by the burning of some species of fungi. None, however, have been able in every respect to rival chloroform. For the internal use of chloroform, see articles throughout this work. (See CHLOROFORM; ETHER, SULPHURIC; NITROUS OXIDE, CHLORAL, ETC.)

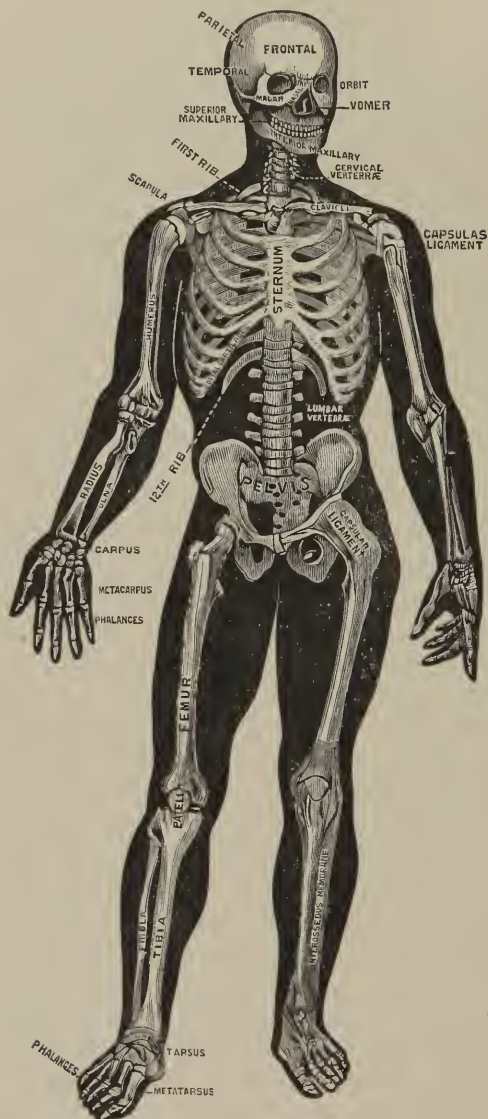
ANALYSIS, *a-nal'-e-sis* [Gr. *analuo*, I loosen, or untie], the resolution of any substance into its constituent elements, or in other words, the art of separating and distinguishing the various constituents of a compound body, either as regards quality or quantity. Analysis is proximate, when the various compound parts are separated as a sulphate into the acid and base, and ultimate when the elementary parts are separated. We may speak generally of chemical analysis, or refer particularly to the analysis of a certain salt. Analysis, being the separation of the component parts of a substance, is directly opposed to *synthesis*, which may be defined as the putting together of elements so as to form a compound. In most analytical operations, however, the chemist works by synthesis, as he usually separates two bodies by means of a third, which unites with one of them, and sets the other free. (See AFFINITY.) It is not always necessary to actually separate the component parts in order to ascertain their nature, as occasionally changes of color, or other results, on the addition of the proper tests, indicate the constituents. If the analyst merely seeks a knowledge of the general *nature* of the substance under examination, he is satisfied when, by the application of certain tests, and by the performance of certain operations, he has obtained evidence of the presence of those elements of which the compound is made up, and the analysis he performs is called a *qualitative* one; but if he desires to ascertain not only the nature but the actual *amount* of the elements present, he must separate the constituents of the compound completely from each other, and obtain them either pure, or in some

well-known form of combination; he then appeals to the balance or measure, and the analysis he performs is called a *quantitative* one. The balance was formerly employed whenever great accuracy was required; but of late, methods of volumetric analysis have been brought to great perfection. By *volumetric analysis* is understood the measured bulk of test-liquids, containing known quantities by weight of certain substances capable of producing, with a solution of the assay, sufficiently marked effects to show with precision the complete conversion of the body sought to be estimated, into a compound, the nature of which is perfectly known. When the constituents of a body can be so reunited as to reproduce the substance which has been analyzed, this process is called chemical synthesis, and is the best proof of the correctness of an analysis.

ANASARCA. (See DROPSY.)

ANASTOMOSIS, *an-as-to-mo'-sis* [Gr. *ana*, through, and *stoma*, a mouth], a term used to denote the communication of the blood-vessels with each other. The necessity of a constant supply of blood to every part of the human body has led to a wise provision, by which, though even one of the larger arteries become obstructed, there are numerous smaller ones communicating with the same part, which, by the increased pressure upon them, become enlarged, and supply its place.

ANATOMY, *a-nat'-o-me* [Gr. *anatemno*, I cut up.]. Anatomy is the art or act of dissecting organized bodies, with the object of elucidating their structure and functions; it is also the science which deals with the knowledge thus obtained, and deduces general principles from it. All material substances either are or have been, or are not and have not been, possessed or endowed with life. The former have an organized structure, in which, in the living state, changes take place, and processes are carried on necessary to their existence. The latter are composed of homogeneous particles, and are subject only to mechanical or chemical changes. In the former are comprehended all plants and animals, in the latter all mineral and inorganic substances. It is to the former of these two great divisions that the term anatomy is applied. As organized bodies naturally form themselves into two distinct classes—plants and animals, so we have *vegetable anatomy*, or the anatomy of plants, and *animal anatomy*, or the anatomy of animals. Animal anatomy, again, is subdivided into *comparative anatomy*, which treats of the structure of all animals except man, and *human anatomy*, which deals with the structure of man only. It is to this last that the general term of anatomy is usually applied. Human anatomy, or anatomy proper, then, treats of the several parts and organs of the human body, in respect to their form, structure, and relation to each other. It is usually divided into general, descriptive, and pathological. *General anatomy* treats of the nature



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and general properties of the separate substances of which the body is composed, not as these exist combined in special organs, but as they form distinct and peculiar substances. *Descriptive anatomy* comprehends a description of the several parts and organs of the body, with an account of their situation, connections, and relations, as existing in the natural and healthy state. *Pathological*, or morbid *anatomy*, traces and describes the changes produced by disease upon healthy structures, whether existing in individual organs, or in the primitive or common substances of which these organs are composed. As an account of the various parts and organs of the human body, as well as of the diseases to which they are subject, will be found under their several names, in other parts of this work, it is unnecessary to do more here than give a short summary of the subject, referring to these articles for more particular information.

General Anatomy.—The human body consists of fluid and solid substances, the fluid bearing to the solid parts a general ratio of from 7 to 1 to 9 to 1. The fluids of the body are various, but may be divided into three classes: the circulating nutritious fluid called the blood; the fluids which are incessantly poured into it for its renewal, viz., the chyle and lymph; and the fluids which are separated from it by secretion, as saliva, bile, gastric juice, etc. The blood is that well-known red fluid which, by means of the heart, arteries, and veins, circulates through all parts of the system, and supplies the waste that is constantly going on. The chyle is a milky fluid, separated from the chyme or digested food after it has passed from the stomach into the small intestines, and become mixed with the bile and pancreatic juice. It is absorbed by the lacteals, and conveyed by ducts or canals to the receptaculum chyli, where it is taken up by the lymphatic vessels, which pervade almost every part of the body. It seems to differ little from chyle, except that the latter contains a greater preponderance of fatty matter. The greater portion of the lymph is poured into the receptaculum chyli, where it becomes mixed with the chyle, and is carried with it into the blood; that, however, collected from the right side of the head and chest, and right upper limb, is conducted into the right subclavian vein, by the right lymphatic or right thoracic duct. The secretions are those fluids secreted or separated from the blood. The term is sometimes used to include the excretions which are thrown off from the body as useless or noxious, as urine from the bladder, perspiration from the skin; but it is properly applied only to such products as are secreted from the blood, but still retained in the system for the performance of certain subordinate actions. These are: 1. Saliva, secreted by the salival glands of the mouth. 2. Gastric juice, by the stomach. 3. Pancreatic juice, by the pancreas. 4. Bile, by the

liver. 5. Tears, by the lachrymal glands. 7. Semen, by the testes. 8. Oil, by the vessels of the adipose tissue. 9. Synovia, by the synovial glands of the joints. 10. Mucus, by the mucous glands.

The organized solids of the human body are usually divided into the following seventeen elementary tissues:—1. Bone, or osseous tissue, which forms the framework of the body, to which the other structures are attached, or in which they are contained. 2. Muscular tissue, consisting of fine fibres, which are for the most part collected into distinct organs called muscles, by means of which the active movements of the body are performed. 3. Adipose tissues, which constitute the fat of the body as well as the marrow of the bones. 4. Areolar, cellular, or connective tissue, a soft filamentous substance of considerable tenacity and elasticity, which is extensively distributed over the body, and forms the connective medium of all the other tissues. 5. Fibrous tissue, formed of a number of minute fibres running chiefly parallel to each other, and sparingly supplied with blood-vessels or nerves, and used for connecting, enveloping, or binding together, various parts of the body, as tendons, ligaments, fasciæ, periosteum, perichondrium, dura mater. 6. Elastic, or yellow tissue, characterized by possessing a high degree of elasticity, and employed wherever that quality is required, as in forming the spinal ligamenta subclava. 7. Cartilage, an opaque substance, usually of a pearly or bluish-white color, but sometimes yellow, covering the articular extremities of the bones, connecting the surfaces or margins of immovable bones, or lining the walls of certain cavities, also found in the ear, nose, larynx, etc. Fibro-cartilage is, as its name indicates, a structure intermediate between fibrous tissue and cartilage, partaking, in some measure, of the firmness of the one with the elasticity of the other. 8. Nervous tissue, which goes to form the nervous system. 9. Blood-vessels, comprising the arteries by which the blood is conducted from the heart to all parts of the body; the veins, by which it is brought back again to the heart; and the capillaries, minute vessels by which it is carried from the extremities of the one to those of the other. 10. Absorbent vessels and glands comprising the lacteals and lymphatics, together with the glands in connection with them. 11. Serous and synovial membranes, which resemble each other in general form and structure, but are distinguished by the nature of their secretions, the former lining the cavities of the body which have no outlet, as the peritoneum in the abdomen, the pleura and pericardium in the chest, and secreting a transparent and nearly colorless fluid, which moistens the surface, the latter lining the cavities of the joints, and secreting a viscid fluid which lubricates their surface. 12. Mucous membrane, which lines those internal passages of the body exposed directly or indirectly to con-

tact with the atmosphere, and secretes a viscid fluid of a more consistent and tenacious character than the serous membranes. 13. Secreting glands, a class of organs widely differing from each other in their nature and form, but all devoted to the function of secretion. 14. Vascular or ductless glands, so called from their general resemblance to secreting glands, but differing from them in having no duct for the conveyance of their secretions, which are re-absorbed or filtered through the tissues, or find an outlet by bursting. 15. Skin,—cutis vera, derma, or corium, the innermost of the three structures that go to make up what is commonly termed the skin, and which covers the whole body. 16. Pigment, a black, or dark-colored substance, occurring in various parts of the body, and giving color to the skin of the negro and other dark races. 17. Epithelium, a thin, transparent structure, covering the whole surface of the body, as well as the walls of the different cavities, and named differently, according to the parts which it covers; as, epidermis, covering the skin, the epithelium of mucous membranes, etc.

Descriptive or Special Anatomy is commonly divided into several branches, according as it regards (1) the bones (*Osteology*); (2) the articulations; (3) the muscles (*Myology*); (4) the blood-vessels and absorbents (*Angiology*); (5) the nervous system (*Neurology*); (6) the organs of sensation, respiration, digestion, etc. (*Splanchnology*).

Osteology.—The number of bones in the human body is variable; but in the adult they are reckoned at about 244. They are usually divided into long, flat, and irregular: long, as in the thigh and leg; flat, as in the skull and pelvis; irregular, as in the hands and feet. Bones are covered with a peculiar membrane, called the periosteum, which serves to conduct the blood-vessels and nerves. The osseous skeleton is divided into head, trunk, upper and lower extremities. The head comprises the bones of the cranium and those of the face, including three common to both. The bones of the cranium are eight in number—the frontal, in the fore part of the skull; the two parietal, forming a portion of its sides and all its superior part; the occipital, forming its lower and back part; the two temporal, forming the lower part of the sides and part of the base; the sphenoid, in the middle of the base; and the ethmoid, in the middle of the fore part of the base. The bones of the face are fourteen in number:—the ossa nasi, which form the arch of the nose; the ossa lacrymalia, at the fore part of the inner edge of the ocular orbits; the malar bones, forming the prominences of the cheeks; the upper maxillary bones, forming the upper jaw, and containing the upper teeth; the ossa palati, situated at the posterior part of the palate, the nose, and the orbits; the vomer, a flat bone, forming part of the septum of the nose; the ossa turbinata inferiora; and the

lower maxillary bones, forming the lower jaw, and containing the under teeth. There are thirty-two teeth; sixteen in each jaw; viz., four incisors, or front teeth; two cuspidati, or canine; four bicuspidati; and six molars. The last molar on each side is called the *dens sapientiæ*, or wisdom-tooth, from not appearing till about the age of twenty-one. The os hyoides, or hyoid bone, is placed in the anterior and upper part of the neck, and has no osseous connection with any other bone. The trunk is divided into the spine, thorax, and pelvis. The spine is a pyramidal column extending from the head to the pelvis, and is composed of twenty-four bones, termed vertebræ. Each vertebra consists of a body and seven processes, and has a foramen, or ring, through which the spinal cord passes. They are divided into three classes—the cervical, including the first seven; the dorsal, consisting of twelve, which are larger than the cervical, and are distinguished by having their sides and transverse processes depressed for connection with the ribs; and the lumbar, consisting of five, which are larger than any other. The first two cervical vertebræ differ from the others, and are known as the atlas and the axis, or vertebra dentata. There are likewise five so-called vertebræ, on account of their being separate in early life, but afterwards uniting to form the os sacrum, which constitutes the posterior part of the pelvis. The thorax, which contains the principal organs of circulation and respiration, is the largest of the three great cavities connected with the spine, and is formed by the sternum and costal cartilages in front, the twelve ribs on each side, and the dorsal vertebræ behind. The sternum is a flat, narrow bone, situated in the anterior part of the thorax, and connected with the ribs by means of the costal cartilages. The ribs are twenty-four in number, twelve on each side, of which the first seven are termed vertebro-sternal, or true ribs, and are attached to the sternum; three are attached to the costal cartilages, and are called vertebro-costal; and two are termed vertebral or floating ribs, from their anterior extremities being free. The pelvis, or lower cavity of the trunk, consists of four bones; the os sacrum and os coccygis behind, and the two ossa innominata on either side. The coccygis, which forms the terminal bone of the spine, is sometimes regarded, like the os sacrum, as composed of four false vertebræ, which are at first distinct, but afterwards become united. The ossa innominata are two irregularly-shaped bones, situated on each side of the pelvis, and consisting of three parts, the ilium, ischium, and pubis, firmly united in the adult, but distinct in the young subject. Each of the two upper extremities is composed of the bones of the arm, the forearm, and the hand, and is united to the trunk by means of the scapula and clavicle, which form the shoulder. The scapula is a flat triangularly-shaped

bone, placed upon the upper part and back of the thorax. The clavicle, or collar-bone, is a long bone, something in the form of the italic letter *f*, and situated between the top of the sternum and the acromion process of the scapula. The arm has only one bone, the os humeri, which extends from the scapula to the bones of the forearm. The forearm consists of two bones, the radius and ulna, which are parallel, and play upon each other; thus admitting of freer motion in that part. The radius, so called from its resemblance to the spoke of a wheel, is situated on the outer side of the forearm. Its upper end is small, and forms only a small part of the elbow-joint, while its lower extremity is large, and forms the chief part of the wrist-joint. The ulna is placed at the inner side of the forearm, and differs from the radius in being larger at the upper than at the lower extremity. The bones of the hand are divided into the carpus, metacarpus, and phalanges. The bones of the carpus, or wrist, are eight small bones, arranged in two rows, the upper row comprising the scaphoid, semi-lunar, cuneiform, and pisiform; the lower, the trapezium, trapezoid, os magnum, and unciform. The metacarpal bones, or bones of the palm, are five in number, and correspond to the fingers. The phalanges, or bones of the fingers, are fourteen in number, each finger, with the exception of the thumb (which has only two), having three of them. The upper and lower extremities bear a great resemblance to each other in the nature and form of their bones. Like the upper, each of the lower extremities consists of three distinct parts—the thigh, leg, and foot. The thigh is composed of a single bone, the os femur, which is the longest and largest in the body. The upper part forms a round head, which is inserted into a deep cup-like cavity of the os innominatum, called the acetabulum: the lower terminates in two protuberances, known as the inner and outer condyles, separated posteriorly by a deep fossa, called the inter-condyloid. The leg consists of three bones; the patella, tibia, and fibula. The patella, or kneecap, is a small, flat, triangular bone, of a spongy texture, situated at the anterior part of the knee-joint, between the femur and the tibia. The tibia and fibula in the leg resemble the radius and ulna in the forearm; the tibia is, after the femur, the largest bone in the body. It is situated at the anterior and inner side of the leg, articulating with the femur above and the astragalus below. The fibula is considerably smaller than the tibia. Its upper extremity is small, and placed below the level of the knee-joint, but the lower extremity projects below the tibia, and forms the outer ankle. The foot, like the hand, is composed of three classes of bones—the tarsus, the metatarsus, and the phalanges. The tarsus is composed of seven bones—the os calcis, astragalus, cuboid, scaphoid, and three cuneiform. The metatarsal bones are long small

bones, five in number, connected at the one extremity with the tarsal, at the other with the phalangeal bones; these last go to form the toes, each of which has three, except the great toe, which has only two.

Articulations.—The different bones of the skeleton are connected together in various ways, and such connections are termed articulations. They are of various kinds, but are usually divided into immovable, movable, and mixed. Immovable articulations exist where flat and broad bones are united to inclose important organs, as in the cranium and pelvis. In some parts the edges indent or interlock each other; in others they are brought into close contact, or are united together by a thin layer of cartilage. The movable articulations are of various kinds, according to the kind of motion required. In such cases, the bony surfaces brought into contact are covered with cartilage, bound together by ligaments, and lined by synovial membrane. Mixed articulation prevails where only a slight degree of motion is required, combined with great strength, as in the vertebræ. The bones of the head and face are connected together by immovable articulation, except the inferior maxillary, the condyle of which articulates with the anterior part of the glenoid cavity of the temporal bone and the anterior root of the zygoma. The different vertebræ of the spine are connected together by ligaments and the inter-vertebral substance; the latter a fibro-cartilaginous, slightly elastic substance, interposed between the adjacent surfaces of the different vertebræ, from the axis to the sacrum, and forming the chief bond of connection between these bones. It varies in shape, size, and thickness, in different parts of the spine. The articulations of the first and second vertebræ are different, and much more complicated than the others, in order to admit of the various movements of the head. In the articulations of the ribs to the vertebræ, the heads of the ribs are connected with the bodies of the vertebræ by one set of ligaments, and the necks and tubercles of the former with the processes of the latter by another set, admitting of a limited upward and downward motion, and a very slight motion backwards and forwards. The cartilaginous articulation of the ribs with the sternum admits only of a very slight motion upwards and downwards. In the pelvis, the articulation of the sacrum with the last of the true vertebræ, and of the coccyx with the sacrum, are similar to that of the vertebræ with each other. The lateral surfaces of the sacrum and ilium articulate with each other by means of an irregular lamella of cartilaginous structure and several sets of ligaments. The sacrum is also connected with the ischium by two ligaments, known as the great sacro-sciatic and lesser sacro-sciatic. The two pubic portions of the ossa innominata articulate in front by means of an elongated piece of cartilage interposed between the osseous surfaces, and connected with

each; the union being strengthened by ligaments. In the upper extremity, the sterno-clavicular articulation is formed by the sternal end of the clavicle, the upper and lateral part of the head of the sternum, and the cartilage of the first rib. The motion here is in almost every direction—upwards, downwards, backwards, forwards as well as circumductive. The scapula-clavicular articulation is formed between the outer extremity of the clavicle and the upper edge of the acromion process of the scapula, and the movements are gliding and rotary. At the shoulder is what is called a ball-and-socket joint, the large globular head of the humerus being inserted into the glenoid cavity of the scapula, and admitting extensive motion in almost every direction. The hinge-joint at the elbow is formed by the lower extremity of the humerus and the upper extremities of the radius and ulna, and allows extensive flexion and extension movements. The rotatory movements of the forearm arise from the connection of the radius and ulna; at the upper extremity the inner side of the head of the radius rotates within the lesser sigmoid cavity of the ulna; at the lower, the head of the ulna rotates upon the sigmoid cavity at the inner side of the radius; while the middle portions of the two bones are connected by two ligaments, forming what is termed the middle radio-ulnar articulation. The wrist-joint is formed by the radius and the inner-articular fibro-cartilage, which separates it from the ulna and the three first bones of the carpus, and admits of flexion, extension, abduction, adduction, and circumduction. The bones of the carpus are united by special ligaments so as to form two rows, and the rows are connected together by ligaments so as to form a joint. The articulations of the carpal with the metacarpal bones admit only of a slight gliding motion of the different surfaces upon each other, except in the case of the thumb, where it is much more varied. The carpal extremities of the last four metacarpal bones articulate with one another at each side, and are bound together by ligaments to form the palm of the hand. The articulations of the metacarpal bones with the phalanges, and of the phalanges with each other, form hinge-joints. In the lower extremity, the head of the femur is received into the acetabulum, or cup-shaped cavity of the os innominatum, and connected by strong ligaments to form the hip-joint. The knee-joint is formed by the lower extremity of the femur articulating with the head of the tibia and the patella, and give flexion and extension with a slight rotary motion. The tibia and fibula are connected together, like the radius and ulna, by various ligaments, and their upper and lower extremities brought into contact; and have a slight gliding motion upon each other. The ankle-joint is formed by the inferior extremities of the tibia and the fibula, united so as to form an arch, into which the superior convex surface of the astragalus is

received, and allows of flexion and extension. The articulations of the tarsal, metatarsal, and phalangeal bones do not differ materially from those of the hand, except that their ligaments are generally stronger, and admit of less motion.

Muscles.—The muscles, with their appendages, the fasciæ and tendons, constitute the active organs of motion. They serve also to protect the walls of large cavities, and to give form and symmetry to the whole body. Muscular tissue is of two kinds, distinguished by structural peculiarities and mode of action. The one class comprises the muscles of voluntary or animal life; the other of involuntary or organic life. The muscles of animal life, or striped muscles, are all those that are capable of being exerted or controlled by the will, and include not only the voluntary muscles, but all the muscles of the ear, those of the larynx, pharynx, tongue, and upper half of the œsophagus, the heart, and the walls of the large veins, at the point where they open into it. The muscles of organic life, or unstriped muscles, form the muscular coat of the digestive canal from the middle of the œsophagus to the internal sphincter ani, of the urinary bladder, the trachea and bronchi, the ducts of glands, the gall-bladder, arteries, etc. The muscles are named from their situation, direction, use, shape, or points of attachment; as, tibialis, obliqui capitis, adductor longus, deltoid, sterno-hyoid. In the human body there are sixty-six muscles at each side of the head and neck: ninety at each side of the trunk, and two single ones; fifty-three in each of the upper extremities; and fifty-six in each of the lower. The limits of the present article preclude our attempting to give details of the situation, relations, etc., of this numerous class of organs, which, besides, would have little interest for the general reader.

Angiology.—The blood-vessels of the human body are the heart, arteries, veins, and capillaries. The heart is a conical muscular organ, lying obliquely beneath and behind the sternum, with its tip pointing downwards, forwards, and towards the left. It is divided by a longitudinal septum into a right and left half, the former containing venous, the latter arterial blood; and each half is again subdivided into two portions communicating with each other, the upper being termed the auricle, the lower the ventricle. From the right ventricle, the blood is sent, by means of the pulmonary arteries, to the lungs, whence it is returned by the pulmonary veins into the left auricle, passes into the left ventricle, and is thence conveyed by the aorta to every part of the body. The aorta, commencing at the left ventricle, ascends for a short distance, then arches over the root of the left lung, descends along the vertebral column within the thorax, passes through the diaphragm into the abdomen, and divides, opposite the fourth lumbar vertebra, into the right and

left common iliac arteries. These last subsequently divide into two branches, named the internal and external iliac arteries; the former being distributed to the walls and viscera of the pelvis, the latter proceeding to the lower limbs, after sending two important branches to the walls of the abdomen. The branches sent off from the arch of the aorta are five in number—the two coronary arteries which supply the heart; the innominate artery, dividing afterwards into the right carotid and subclavian arteries; the left carotid and the left subclavian. Each of the carotids afterwards separates into the external and internal carotid; the former being distributed to the external parts of the head and face, the latter to the internal parts of the cranium. The subclavian artery supplies the upper extremity, giving off, as branches, the vertebral, the internal mammary, thyroid axis, and the superior intercostal arteries. From the thoracic portion of the aorta, numerous branches are given off, chiefly of small size, and known as the pericardiac, bronchial, œsophageal, posterior mediastinal, and intercostal arteries. The abdominal aorta gives off numerous branches, which may be divided into two sets—those which supply the viscera, and those which are distributed to the walls of the abdomen; the former comprising the celiac artery (which shortly divides into the gastric, hepatic, and splenic arteries), the superior mesenteric, the inferior mesenteric, the capsular, the renal, and the spermatic arteries; the latter, the phrenic, lumbar, and middle sacral arteries. The veins which return the blood from the capillaries to the heart are of two kinds—the pulmonary, conveying arterial blood from the lungs to the left auricle of the heart, and the systemic, carrying venous blood from all parts of the system back to the right auricle of the heart. The pulmonary veins are four in number, two for each lung, and differ from other veins in being destitute of valves. The systemic veins are usually arranged into three groups, according to their mode of termination in the heart:—1. Those of the head, neck, thorax, and upper extremities, which terminate in the superior vena cava. 2. Those of the abdomen, pelvis, and lower extremities, which terminate in the inferior vena cava. 3. The cardiac veins, returning the blood from the substance of the heart, and opening directly into the right auricle. The veins, in their general form and distribution, correspond to the arteries. The vena cava superior is a short trunk formed by the junction of the two venæ innominatæ, and terminating in the upper part of the right auricle. The vena cava inferior is formed by the junction of the two common iliac veins between the fourth and fifth lumbar vertebræ, and terminates in the lower and back part of the right auricle. The capillaries [from *capillus*, a hair], are minute vessels pervading every part of the body, and uniting the extreme points of the arteries

with those of the veins. Their diameter varies in different parts, but is usually about $\frac{1}{3000}$ th part of an inch. For an account of the absorbent system, see ABSORBENTS.

The nervous system consists of two parts, known as the cerebro-spinal and the sympathetic or ganglionic systems. The former includes the brain and spinal cord, with the nerves proceeding from them, and is regarded as the nervous system of animal life; the latter consists of a double chain of ganglia, running along the spinal column, whose functions seem to be less directly connected with the mind, and chiefly bearing upon the animal life. The cerebro-spinal system is divided into the encephalon, or portion contained within the cranium, and the spinal cord, inclosed within the vertebral canal. The encephalon comprises the cerebrum, the cerebellum, the pons Varolii, and the medulla oblongata, and is covered with three membranes, called the dura mater (or outermost), the arachnoid membrane, and the pia mater. The substance of the encephalon is of two kinds—a cineritious or grayish substance, called also corticle, from forming the outer part of the cerebrum and cerebellum; and a white or medullary matter, forming the inner substance of the cerebrum and cerebellum, but the outer of the medulla oblongata and pons Varolii. The cerebrum, or brain proper, forms by far the largest portion of the encephalic mass. Its upper surface is divided into a right and left hemisphere, by a longitudinal fissure lodging the falx cerebri. The under surface of each hemisphere is marked off into three lobes, called the anterior, middle and posterior. The entire surface of each hemisphere presents a number of convoluted eminences, separated from each other by depressions of various depths. The cerebellum, or little brain, is situate beneath the hinder part of the cerebrum, from which it is separated by the tentorium cerebelli. It is likewise divided into two lateral hemispheres; but the surface is not convoluted, but laminated. It is connected with the rest of the encephalic masses by means of connecting bands, called crura or peduncles, two of which ascend to the cerebrum, two descend to the medulla oblongata, and two unite in front to form the pons Varolii. This last occupies a central position on the under surface of the encephalon, and constitutes the bond of union between the other parts, being connected above by crura from the cerebrum, at each side by crura from the cerebellum, and being in contact below with the medulla oblongata. This last extends from the lower border of the pons Varolii to the upper part of the spinal cord. It is pyramidal in form, with its broad extremity directed upwards, and measures about an inch and a quarter in length. By means of two fissures it is divided into two lateral and symmetrical halves. The spinal cord is situate within the vertebral canal, and ex-

tends from the foramen magnum of the occipital bone to the first or second lumbar vertebra, where it terminates in the cauda equina, an aggregation of nervous cords occupying the remainder of the canal. The spinal cord, like the encephalon, is inclosed by the three membranes—the dura mater, arachnoid, and pia mater. It is composed of white and gray matter, the former external, the latter internal. The gray substance is found, on making a section, to be arranged in a crescental shape in each hemisphere of the cord, the posterior cornua being much longer than the anterior. From the spinal cord spring thirty-one pairs of spinal nerves, corresponding to the number of true and false vertebræ, between which they issue, except that there are eight pairs of cervical nerves and one coccygeal. Each spinal nerve arises by two roots—an anterior or motor, and a posterior or sensitive. These approach one another, and, with few exceptions, unite in the corresponding inter-vertebral foramen into a single cord, which almost immediately divides into two branches, one of which proceeds to the muscles, etc., of the back, the other to the anterior parts of the body. Besides the spinal nerves, there are nine pairs of nerves that issue from the encephalon to different parts of the head and face. They are connected with the organs of seeing, hearing, taste, smell, etc., and are hence named optic, auditory, olfactory, etc. They are also distinguished numerically, as first, second, third, etc., according to the part of the brain from which they spring. The sympathetic or ganglionic nervous system is composed of a series of ganglia, or nervous centers, extending along the spinal column from the base of the skull to the coccyx, connected with each other by filaments, and also communicating in various parts with the cerebro-spinal system. They are regarded as the nerves of organic life, and principally supply the various viscera and blood-vessels. (See NERVOUS SYSTEM.)

Splanchnology.—Regarding the anatomy of the various organs of sensation, respiration, digestion, etc., we must refer to the accounts given under their proper names, in other parts of this work.

History.—Some knowledge of the internal structure of the human body was doubtless obtained at a very early period. The ancient Egyptians are said to have acquired great anatomical skill from their practice of embalming, and Homer displays a considerable amount of knowledge of the human body in his description of wounds, in the “Iliad.” Hippocrates, who flourished about 400 years B. C., is regarded as the first author who treated anatomy as a science. Erasistratus, and Herophilus of Alexandria, are considered as the first who dissected and described the human body, nearly 300 years B. C. Galen, however (born 131 A. D.), is the author of antiquity that displays the

most intimate knowledge of the human body; and even he evidently obtained a great part of his knowledge from dissections of apes and other animals, there being a law in Rome which forbade the use of dead bodies. During the dark ages, anatomy, like other sciences, made little progress. The interest of anatomy began to revive about the 13th century, and in the beginning of the 14th, Mundinus dissected and demonstrated the different parts of the human body at the University of Bologna, and published a work which formed the text-book in Italy for nearly 200 years. During the next 200 years the interest in anatomy continued to increase, and within that period, there are several respectable names in connection with it, as Gabriel de Zerbio, Achillini, Berenger, and Massa. The errors of Galen, however, still prevailed till the time of Vesalius, who flourished about the middle of the 16th century, and boldly, by dissections of the human body, pointed out the errors into which he had fallen. He is regarded as the father of modern anatomy. His great work, *De Corporis Humani Fabrica*, was published before he was twenty-eight years of age. He gave a great impulse to human dissection; and, among his contemporaries, or immediate successors, were—Fallopian, Eustachius, Varoli, and Fabricius. In the 17th century the progress of anatomy was rapid. In 1619 Harvey's great discovery of the circulation of the blood was announced. Asellius, in 1627, gave out his discovery of the lacteals; and in 1651 Rudbeck discovered the lymphatics. Among the other distinguished anatomists of this century were, Bartholin, Pecquet, Jolyffe, Wharton, Swammerdam, Willis, Malpighi, and Ruysch. In the 18th century we have many eminent names. In Italy, which still retained a first place, were Vasalva, Santorini, and Morgagni; in France, Winslow, Vicq d'Azyr, and Bichat (the founder of General Anatomy); in Germany, Haller, Meckel, Zinn, and Soemmerring; in Holland, Boerhaave, Albinus, Camper, and Bonn; in England, Cheselden, the two Hunters, Charles Bell; and in Scotland, the Monroes, of Edinburgh. The present century has been specially characterized by the great advance made in a minute or microscopic anatomy. Among the names of this period may be mentioned Cloquet, Magendie, Müller, Quain, Goodsir, Bowman, Todd, Sharpey, Ellis, Wilson, Gray, and Holden.—See Quain's "Anatomy," Gray's "Anatomy," Holden's "Human Osteology," Wilson's "Anatomist's Vade-Mecum." (See HEART, LUNGS, LIVER, STOMACH, ALIMENTARY CANAL, KIDNEY, BONE, MUSCLE, EYE, EAR, FOOT, HAND, ETC.)

ANCHYLOSIS, *angke-lo'-sis* [Gr. *agkuloos*, I bend], the name given to an affection which causes stiffness of a joint: so called on account of the limb in which it occurs being usually bent. It is sometimes written

ankylosis. Ankylosis is divided into true, or complete, and false, or incomplete. These conditions may attack any joint of the body, and instances have been known of the whole body becoming ankylosed. In complete, or true ankylosis, no motion whatever takes place, the heads of the bones being connected together by osseous or bony matter. In incomplete, or false ankylosis, the immobility arises from adhesion of the synovial membrane, or a thickening of the parts about the joint, and usually admits of some degree of motion. Ankylosis frequently occurs after sprains, dislocations, or fractures near a joint, and, indeed, may be occasioned by anything that keeps a joint long motionless. In order to prevent ankylosis, the joint is to be exercised as much as the state of the surrounding parts will admit; if it cannot be prevented, the joint is to be kept in the most convenient and natural position. Ankylosis is sometimes very desirable as a termination of diseases of the joints. False ankylosis may be treated by gradual extension, frictions with liniments, and fomentations. The true, bony ankylosis has been remedied by making a false joint, sawing through the parts, but this is a desperate expedient.

ANDIRA, *an-di'-ra*, in Botany, a genus of plants, belonging to the Nat. order *Leguminosæ*, suborder *Papilionaceæ*, characterized by a one-celled one-seeded pod, almost orbicular. The species *A. inermis* is a native of the West Indies, and is commonly known as the cabbage-bark tree. The bark, called either cabbage-bark or worm-bark in commerce, was formerly much used medicinally as an anthelmintic. (See ANTHELMINTICS.) It possesses cathartic, emetic, and narcotic properties. In large doses it is poisonous. The species, *A. retusa*, a native of Surinam, yields a bark with similar properties, which is commonly known as Surinam bark. The dose of the powder is, 1 scruple to $\frac{1}{2}$ dram; of the extract, 3 grains two to four times a day. The dose of this medicine is to be gradually increased till it induces a degree of nausea, the occurrence of which limits the dose; for if it be carried further, it occasions vomiting, fever and delirium. The seeds of this plant possess the same virtues as the bark.

ANDROMEDA, *an-drom'-e-da*. A genus of plants, family *Ericaceæ*. Broad-leaved moor-wort. A decoction of the leaves is said to be useful in ground-itch, or toe-itch.

ANEMONE, *a-nem'-o-ne*. A genus of perennial herbs of the family *Ranunculaceæ*. So named because the flower was thought to open only while the wind blows. From the anemone pulsatilla, comes the pulsatilla so much used by homœopaths. (See PULSATILLA.)

ANETHUM, *a-ne'-thum* [Lat. *anethum*, dill, anise], a genus of plants belonging to the Nat. order *Umbellifereæ*. The species *A. graveolens*

is commonly known as the Dill. The fruits, improperly termed seeds, of this plant are imported into this country from the south of France. They have carminative properties, due to the presence of an essential oil, contained chiefly in the *vittæ* of the pericarp. They are used in medicine, and, it is said, in the manufacture of London gin. The plant is also cultivated in this country. Dose of the oil, 2 to 5 drops; of the seeds bruised, 10 to 40 grains.

ANEURISM, *an'-u-rism* [Gr. *aneuruno*, I widen or dilate.] A tumor formed by the morbid dilatation of an artery. In Surgery, it is usually defined to be a pulsating tumor, containing blood, and communicating with the interior of an artery. It is a tumor formed by a preternatural dilation of a part of an artery, or by the extravasation of arterial blood in the cellular membrane, in consequence of a rupture or wound of the coats of an artery. The former is termed true, the latter false or spurious aneurism. If the two inner coats of an artery are ruptured, and a sac is formed by the outer, it is called a mixed aneurism. Aneurisms arise partly from too violent motion of the blood, partly from preternatural weakness in the membranes of the artery. They are most frequent in the adult, between the ages of thirty and fifty, and occur oftener in the male than in the female; but no age is wholly exempt from them. They may be met with in any part of the body, and are usually divided into external and internal; the former occurring on the limbs, neck, or external part of the head; the latter forming in any of the cavities of the body, as the thorax or abdomen, and generally affecting the aorta or some of its principal branches. In the early stage of aneurism, if external, a small pulsating tumor is observed, which entirely disappears when compressed, but returns as soon as the pressure is removed. It continues to grow larger, and as it increases in size its pulsations become weaker, partly on account of its greater distance from the course of the blood, and sometimes also from the accumulation of fibrine within in the cyst. Sometimes this fibrine consolidates, and becomes connected with the walls of the cavity, which it at length fills up, occasionally bulging into and choking up the artery. This, however, is a termination of aneurism that is unfortunately rare. In most cases, the dilation of the sac goes on until, if not arrested, the inclosing membranes give way, and the patient expires from loss of blood; or death may be produced by pressure upon important parts, as the trachea, œsophagus, nerves, etc.

Treatment.—The cure of aneurism consists in applying a ligature to the artery above the tumor: the ingress of blood into the sac is thus prevented, and its contents are gradually absorbed. The blood, being interrupted in its course through the artery, passes with greater force

into the collateral branches, permanently enlarging them; and thus the necessary circulation to the parts beyond the obstruction is carried on. In internal aneurisms not admitting of such treatment, recourse must be had to such means as moderate the action of the heart, and depress the general circulation, thus inducing the formation of fibrine within the sac, which may gradually fill it up. These consist of repeated bleedings, low diet, perfect rest, and the administration of gentle laxatives and medicines which moderate the action of the heart, as digitalis, etc. (See DIGITALIS.)

ANGELICA. (See ARCHANGELICA.)

ANGINA PECTORIS, *an-ji'-na pek'-to-ris* [from the Gr. *agko*, to strangle, and Lat. *pectus*, the breast], literally signifies a contraction or tightening of the chest, and in Medicine is the name of a disease of the chest, characterized by a feeling of painful constriction at the lower part of the sternum, or breastbone, inclining to the left side, and extending to the left arm. The pain is very acute, accompanied with a difficulty of breathing, irregular action of the heart, and a feeling of approaching dissolution. The paroxysms last from a few minutes to half an hour or more, and come on suddenly, at irregular intervals.

Causes.—They are often excited by violent exercise, strong mental emotion, or a derangement of the digestive organs; but frequently make their appearance without any manifest exciting cause. It is met with chiefly in the middle-aged or old, and is more frequent in males than females. Physicians are by no means agreed as to the seat and nature of this disease, and dissection has shown almost every disease of the thoracic viscera in connection with it. The general opinion, however, seems to be that it is owing to some important organic disease of the heart, which impairs its functional activity, such as fatty degeneration of its muscular fibres, which in very many cases has been found to be present. It is the nature of this disease to proceed from bad to worse.

Treatment.—Where the patient is young, or of good constitution, and where there are no symptoms of organic affection, success frequently attends early, active, and judicious treatment. Violent exercise and strong mental emotions are to be avoided, as well as long fasting or too full meals, and sudden exposure to great heat or cold. In fact, the patient “must lead a sober, quiet, and temperate life, in which neither the emotions of the soul are to disturb the functions of the body, nor corporeal affections are allowed to disturb the serenity of the mind.” An attack of angina pectoris is an emergency affecting life, to which there are few equal; full, instant, stimulation is demanded, and the first agent of the kind at hand must be used, till other remedies and proper assistance can be procured. A glass of spirits and water as hot and

strong as it can be swallowed, and with it, if procurable instantly, sixty drops of laudanum must at once be given. A strong mustard-poultice is at once to be applied to the front of the chest, and the same between the shoulders—hot applications to the feet. If the paroxysm be not subdued in a quarter of an hour, the stimulant is to be repeated with half the quantity of laudanum, and this again, after the same interval, if requisite. Spirits have been mentioned as being the most readily procurable, but when ether and sal volatile, either one or other, or both, are at hand, they are preferable, and must be given in just so much water as will permit of their being swallowed; a teaspoonful of each with sixty drops of laudanum. A person who has once suffered an attack of angina should never be without these three requisites, laudanum, or better, Battley's solution of opium—ether—sal volatile. It is needless perhaps to say, that all these measures of an emergency in which not a moment is to be lost, are whilst waiting the arrival of the medical attendant, and that to him must be entrusted the direction of that regulated mode of life, which must ever be adopted after an attack of this disease. The general health is to be improved by means of tonics, attention to diet, and the state of the bowels.

ANGINA TONSILLARIS, *an-ji'-na ton-sil-la'-ris*, inflammatory sore throat, inflammation of the tonsils. (See SORE QUINSY.)

ANGLE, FACIAL, *ang'gl fu'-shal*, a straight line drawn from the most prominent part of the forehead to the alveolar edge of the upper jaw, opposite to the incisor teeth, and another, from the external auditory foramen to the same point, form an angle called the facial angle. The facial angle does not afford a very correct criterion of the development of the cranium, or the sagacity of the animal; nevertheless, there appears to be some general truth in the indications derived from it, especially in relation to the human species, for in the European race, the facial angle is seldom less than 80° , while in the negro it is seldom more than 70° .

ANGUSTURA BARK, OR CUSPARIA BARK, *an-gus-tu'-ra*, a valuable drug, imported directly or indirectly from South America. In small doses it acts as a stimulant, tonic, and febrifuge; while in large doses it is somewhat emetic and purgative. This bark is the produce of different species of *Galipea*, and its characteristic properties depend on the presence of an active principle, to which the name *Cusparin* has been given. The powder is given in doses of 10 to 30 grains.

ANHYDROUS, *an-hi'-drus*. Oxides and salts containing no water are said to be anhydrous. Water possesses the property of forming compounds called hydrates, with different salts and oxides. Thus we have hydrate of potassa, of lime, of oxide of chromium, etc. The

affinity possessed by many metallic oxides for water is so strong that, when once the hydrate is formed, the water cannot be separated but by the addition of an acid. Caustic potassa, for instance, contains one atom of water which is not separated even by a red heat.

ANILINE, *an'-il-een*, a volatile oily alkaloid, obtainable from indigo and from other sources, but principally from coal tar, from which it is extensively prepared for the purpose of forming certain dyes. *Medicinal properties and actions*: It is sedative and antispasmodic, acting apparently in a direct manner upon the nervous system, according to the researches of Dr. J. Turnbull, who first proposed it as a therapeutic agent. The sulphate of aniline, which appears to be destitute of the local irritating properties of the aniline itself, is the form in which it has been chiefly employed. One peculiarity of its action is the presence of a remarkable blue color of the lips, tongue, and nails, together with a more or less dusky appearance of the complexion, which, however, disappears in a few hours after the medicine has been discontinued. In some cases it produces depression of the nervous system and headache, which are also only of a temporary nature. In large doses it is poisonous. The blue discoloration above described is attributed to the formation of a coloring matter or dye produced by the oxidation of the aniline in the blood.

The dose of the sulphate of aniline is 1 grain twice daily, gradually increased to $1\frac{1}{2}$ to 2 grains in solution, either with or without a few drops of dilute sulphuric acid. Its use should be intermitted for a few days on the appearance of blueness of the lips or depression of the nervous system.

ANIMAL, *an'-e-mal*, a symmetrical organization, provided with an internal stomach, and possessing the power of voluntary motion. The nervous system is peculiar to animals. The term animal embraces energy, variety of form, and degree of development. Chemically considered, animals are compounded of carbon, hydrogen, oxygen, and nitrogen chiefly. Phosphorus and sulphur exist in all to a limited extent; the earthy bodies are peculiar to some only. Animals differ from plants in their power of digestion. While plants convert gases, water, and inorganic substances into starch, fibrin, etc., animals are not capable of producing extensive changes in the food they receive, and require that which is highly organized for their nutrition. (See ANIMAL CHEMISTRY.)

ANIMAL ACIDS, those acids produced by the metamorphoses occurring within animals, such as the cholic, uric, cystic, lactic, cerebrie, margaric, stearic, etc.

ANIMAL CHEMISTRY, that branch of science which treats of the

different changes going on in the living animal; such as the change of the egg, consisting of white, yolk, and shell, into the flesh, blood, bones, and feathers of the young bird. The processes of respiration, digestion, and assimilation of food, are purely chemical operations. The principal chemical substances necessary for the support of the different functions of the animal system are oxygen, hydrogen, carbon, nitrogen, sulphur, phosphorus, and chlorine, and the metals iron, sodium, potassium, lime, and magnesia. These are all received into the system in the form of food, and become distributed to the different parts of the body during the process of digestion and assimilation; as, for example, the iron to the blood and hair, the lime and phosphorus to the nails and bones. If any of these substances are wanting, the system suffers, and they must be restored to the patient. For instance, rachitis, or rickets, in children, is caused by the bone containing too little lime; and the best remedy, therefore, in its earliest stage, is plenty of lime-water, or some other substance containing lime. The following analysis of different parts of the human system will be interesting, as showing the destination of these different substances:

<i>Bone.</i>		<i>Hair.</i>	
Animal matter.....	31	Carbon.....	51
Phosphate of lime.....	59	Hydrogen	7
Fluoride of calcium.....	2	Nitrogen	17
Carbonate of lime.....	7	Sulphur.....	3
Phosphate of magnesia.....	1	Oxygen	22
<i>Blood.</i>		<i>Flesh.</i>	
Water.....	779	Coagulated fibre.	
Fibrine	2	Water, three-fourths.	
Fatty matter.....	2	Albumen.	
Albumen.....	69	Phosphoric acid.	
Iron and salts	7	Phosphates.	
Blood corpuscles.....	141	Chlorides.	

The modern discoveries of animal chemistry have thrown great light upon the vital functions, and the laws governing them, and have purged medical science of much of the rubbish in which it was previously involved. (See BLOOD, BONE, HAIR, FLESH, RESPIRATION, DIGESTION, ETC.)

ANIMAL FLUIDS, the blood, bile, gastric juice, pancreatic juice, mucous and serous exhalations, chyle, lymphatic fluid, semen, etc.

ANIMAL FOOD. (See FOOD.)

ANIMAL HEAT. Animal heat may be defined to be the temperature which results from vital operations occurring in the bodies of the higher animals, and which maintains them, at a nearly uniform heat, independent of that of the atmosphere, or other media by which they are surrounded. In healthy men, the average temperature of the body

is 98° or 99° . Heat is one of the conditions necessary to life, and, when that is reduced below a certain point, all vital activity ceases. The sun is the great source of heat, and on it vegetables and the greater number of tribes of animals principally depend. There are certain tribes of animals, however, especially birds and mammals, which possess the power of generating heat within themselves to such a degree as to render their vital functions almost entirely independent of external influences; and there is probably no species that can exercise this power effectually and through a greater range of conditions than man. Judging merely from our sensations, we should be led to conclude that our bodies undergo very considerable changes of temperature. Such, however, has been proved not to be the case. From a series of 114 observations made by Dr. John Davy on persons of different ages and sexes, and in various latitudes, it was found that the mean temperature of the body was 100° in a mean atmospheric temperature of 74° ; the highest temperature of the body being 102° , while the highest atmospheric temperature was 82° , and the lowest temperature of the body 96.5° , while the lowest temperature of the air was 60° . The mean age of all the individuals was 27. In favorable circumstances, the temperature of infants is somewhat higher than that of adults; but, in their power of resisting the depressing influence of external cold, the former are much inferior to the latter. External cold reduces the temperature of the body considerably, especially if at rest. Thus Dr. Davy found the temperature of his own body reduced, on an average of four observations, to 96.7° , with the average temperature of the surrounding air at 37° . An increase of temperature takes place after exercise, as well as after a meal. The usual temperature of the body occasionally undergoes considerable change in disease, from 106° in fever to 67° in cholera. The mean temperature of birds is rather higher than that of mammals, averaging about 108° , while mammals average about 101° . Animal heat arises from the various changes that are constantly going on within the bodies of the animals. Every change that takes place in the condition of the organic components of the body, in which their elements enter into new combinations with oxygen, is necessarily a source of the development of heat. By the union of the oxygen of the atmosphere with the carbon and hydrogen of the body, a species of combustion takes place, and heat is evolved. Hence we find that the more rapidly this combustion is carried on, the greater the amount of heat produced; and hence exercise increases the heat of the body. Some have held that combustion was not sufficient to account for the total amount of heat generated in a living body; but the most recent authorities are now generally agreed that such is the case, especially when we take into

account the small quantities of sulphur and phosphorus which also undergo oxidation within the system. One great fulfilment, therefore, of the food we digest, is to keep us warm, by the continual combustion of elements going on within us; consequently, persons who can consume and digest large quantities of food have much greater power of resisting cold than those who cannot, and chilliness is one very constant symptom of impaired digestion; the stomach is unable to keep the system supplied with fuel. The point is one of considerable importance in the selection of crews for arctic expeditions, and ought to have some influence with intending emigrants in their choice of a future home. An individual who suffers from habitual weakness of digestion ought to choose a warm or genial climate in preference to a cold one. Fats and oils especially, which contain much carbon and hydrogen, afford great protection against severe cold; accordingly all northern people, like the Esquimaux, consume them in large quantity, and Europeans traveling in northern latitudes have always copied the natives in this respect. Alcoholic fluids, like fat and oil, contain much carbon and hydrogen, but their stimulant properties, and more evanescent influence, render them unfit for *ordinary* consumption to sustain animal heat, although on *extraordinary* occasions they are invaluable. When from illness or any other cause, sufficient food cannot be taken to keep up a due temperature, fuel is supplied at the expense of the bodily tissues, more especially of the fat—as the case is in hibernating animals—and if illness, such as fever continues, even the supply within the body threatens to fail, and the person is actually in danger of dying of cold. It then becomes imperative to get into the circulation as much “respiratory food,” as much nourishment as possible, simply, as fuel. Much may be done by strong animal broths, but alcohol is the great resource, in whatever form is most advisable; it passes readily into and mingles with the blood, and affords an immediately available supply of carbon and hydrogen to keep the animal temperature going. The regular, steady supply of wine when required in fever, must be kept up, and this cannot be too strongly impressed upon the mind of the attendant. Half an hour’s nap on the part of the nurse may lose a life.

But internal heat cannot do all in our cold clime, and with artificial modes of living, it is of the utmost importance, especially in the young and delicate, to maintain the full temperature of the surface by proper clothing. The subject is one, respecting which much carelessness and ignorance prevails in all classes of society in this country, and children, half-clothed for the sake of appearance, with bare chests and limbs, and exercise not sufficiently active to counteract the effects of the chill, are exposed to all the evils resulting from internal congestions of

the blood repelled from the surface. Warm clothing is, in some respects a substitute for food, and either man or animal requires less nourishment when protected from cold. It is well known to agriculturists, that sheep or cattle will fatten more quickly under cover in winter, than if exposed to the weather. The reason is obvious, they are able to store up in their bodies that which otherwise must have gone to keep them warm. When it is considered that abstraction of animal heat, by cold and wet, is one of the most fertile sources of fatal disease, the importance of maintaining the full temperature of the body is manifest. It is well known that exercise is the best antagonist to cold, it is so, by quickening the respiration, and thus increasing the supply of oxygen taken in by the blood, which is also circulated more rapidly. In fact, to use the simile which compares the body to a stove, exercise gives a free draught for the process of combustion. Continued exposure to an extreme degree of cold, which carries off the animal heat more quickly than it can be generated, it is well known, gives rise to overpowering drowsiness, which, once yielded to, is death. It must be resisted, and when one of a party thus exposed is inclined to yield, the others must resort to every means calculated to rouse, even—as has been done—by thrashing him along; the temper which is excited is a most excellent resistant of cold. It should be remembered that if active exertion continue too long, it will cease to promote warmth, in consequence of the available heat producing agents—in the body—being comparatively exhausted. (See AERATION, BLOOD, LUNGS, CIRCULATION, FOOD, HEAT, COLD, ETC.)

ANIMAL KINGDOM, the entire collection of animated objects. There are four primary divisions, or sub-kingdoms: 1. Vertebrata, or animals furnished with a regular backbone. 2. Articulata, animals which contain no skeleton, but are covered with a crust or shell, made of distinct parts, or articulations, as the lobster. 3. Mollusca, animals destitute of skeleton or articulations, but usually inhabiting shells. 4. Radiata, animals of the lowest organization, destitute of an internal respiratory organ, and having a nervous system composed of mere lines, which are often radiated from a center. Each of these sub-kingdoms contains several classes.

ANIMAL MAGNETISM, the mysterious influence which one man appears, by an effort of the will, to exercise upon the body of another man, and which, undoubtedly, gives rise to many very remarkable phenomena, has been rashly ascribed to a peculiar modification of magnetic force. Those few who have studied mesmeric manifestations in a scientific spirit have, however, very wisely discarded the term *animal magnetism*, as it pretends to define an agent that we have no evidence to exist. (See MESMERISM.)

ANIMATION, SUSPENDED, *an-e-ma'-shun*. Suspended animation is the term applied to that condition in which the life of the body is threatened, in consequence of respiration having been stopped or impeded, but in which there still exists a possibility of life being preserved. The chief causes of suspended animation are drowning, hanging, immersion in choke-damp or irrespirable gas, and intense cold. (See DROWNING, HANGING, COLD, CHOKE-DAMP, CARBONIC ACID, ETC.)

ANISE, *an'-es*, [Gr. *anison*, Lat. *anisum*]. Anise is an umbelliferous plant cultivated in Egypt, Malta, Spain, and Germany, for the sake of its fruit, called aniseed, which is extensively used for flavoring liquors and confections, and medicinally as a carminative. The botanical name of the plant is *Pimpinella Anisum*. Star or Chinese aniseed is the fruit of the *Illicium anisatum*, a small tree in the Nat. order *Magnoliaceæ*. It has a starlike form—hence its name, and a flavor similar to that of the common aniseed. Oil of aniseed is obtained by distilling the fruit, and even the stems and leaves of the common anise. For this, a similar product, yielded by the star aniseed, is frequently substituted. The true oil and its substitute have the aromatic properties of the fruits, and are employed for the same purposes. Dose of the oil from 5 to 20 drops on sugar; of the powdered seeds, from 10 to 30 grains; and of the infusion, a wine-glassful. (See INFUSION.)

ANKLE, *ang'-kl*. The ankle is the joint connecting the foot with the leg. It belongs to the class of hinge-joints. It is formed by the lower ends of the tibia and fibula united so as to form an arch into which the superior convex surface of the astragalus is received. From its position, this joint is very liable to be sprained or dislocated. (See DISLOCATIONS, SPRAIN.) Children have often distorted ankles from feebleness of constitution, or from being allowed to walk too soon. In such cases, the general health is to be improved by means of nourishing diet and tonics, as iron; and the child is not to be allowed to stand or run about too much. Stout elastic stockings should be worn, and even, if necessary, leg-irons; and the boots should be made thicker in the sole on that side to which the ankle is inclined. The ankles should also be bathed twice a day in cold salt water, and vigorously rubbed with a rough towel. (See CHILDREN.) Whenever the least suspicion exists that violence to the ankle has caused more than a sprain, no time should be lost in submitting it to the examination of a surgeon. Such injuries are often obscure, and there is much difficulty in making out their exact nature after swelling has come on. A simple sprain of the ankle is to be treated in the mode directed to be followed in similar cases generally. In case of dislocation occurring at a great distance from medical aid, and when from the extreme distortion of the foot the accident is distinctly apparent, some

attempt ought to be made by those near to replace the parts, while some one in the meantime is procuring medical aid. The sufferer being laid down, one individual should grasp the leg firmly just below the calf, whilst another, grasping the heel with his left hand, and the lower part of the instep with his right, endeavors by extension in the first place, and slight turning of the foot towards its proper position, to reduce the dislocation. Children are sometimes born with ankles distorted. (See CLUB-FOOT, DISLOCATIONS, JOINTS, SPRAIN, DEFORMITY.)

ANODYNE, *an'-o-dine* [Gr. *a*, without, *odune*, pain], a medicine which allays pain. The term is usually applied only to a medicine which acts upon the nervous system so as to decrease sensibility and induce sleep, or a state of partial unconsciousness. The most important anodynes are preparations of opium, belladonna, aconite, conium, hyoscyamus, lettuce, hop, camphor. Anodyne must be regarded as constituting one of the most benevolent provisions of the Creator for the relief of his creatures. The removal of pain by an anodyne is like a breath of heaven. (See OPIUM, ATROPA BELLADONNA, ACONITE, CONIUM, HYOSCYAMUS NIGER, LACTUCA, HUMULUS LUPULUS, CAMPHOR, ETC.)

ANODYNE NECKLACES. Anodyne necklaces are made of the roots of henbane, bryony, etc. They are believed by the credulous to facilitate dentition, procure sleep, etc.

ANODYNE PLASTER. Useful in any acute local pain, especially of a nervous kind. Ingredients

One dram of powder of opium
One dram of camphor.
Olive oil.
One ounce of adhesive plaster.

Mode: Dissolve the opium and camphor with a little olive oil; melt one ounce of adhesive plaster, and work the other ingredients well and evenly into it. Lay the plaster on the part affected.

ANOMALY, *a-nom'-a-le*, a deviation from ordinary laws. Monstrosities are called anomalies of organization.

ANOREXIA, *an'-o-reks-e-a* [Gr. *a*, not, and *orexis*, appetite], loss of appetite.

ANTACID, *ant-as'-id* [Gr. *anti*, against, and *acid*], a term applied to such medicines as possess the quality of correcting acidity or sourness in the stomach. The principal antacids are potash, soda, ammonia, magnesia, lime, and their carbonates. The carbonate is the form in which they are usually administered. Where acidity is conjoined with nausea and faintness, ammonia acts as a grateful stimulant, as well as an antacid.

The use of antacids can only be palliative, and their continued regular

use is productive of serious mischief, for they inevitably destroy the tone of the stomach, and aggravate permanently the evil they may temporarily relieve. Whenever antacids are frequently required, it is a sign that there is some other disorder, though perhaps less prominent, which must be looked for and corrected. (See ACIDITY OF THE STOMACH, DYSPEPSIA, DIGESTION, ETC.)

ANTAGONIST MUSCLES, *an-tag'-o-nist* [Gr. *anti*, against, *agonistes*, a combatant], in Anatomy, are those muscles which act in opposition to each other; as flexors and extensors, abductors and adductors.

ANTALKALI, *ant-al'-ka-li* [Gr. *anti*, against, and *alkali*], a name applied to such medicines as tend to counteract the presence of alkalies in the system. The antalkalies in most common use are muriatic, nitric, and citric acid.

ANTAPHRODISIAC, *ant-af-ro-dizh'-e-ak*, applied first, to medicines which quell amorous desires, or diminish the venereal appetite; applied second, to medicines used against syphilis.

ANTHELMINTICS, *ant-hel-min'-tiks* [Gr. *anti*, against, and *elmins*, a worm], a term applied to such medicines as have the effect of destroying worms in the stomach and intestines. They are of various kinds, but may be divided into three classes—those which, by increasing the peristaltic motion of the intestines, tend to displace the worms, and may thus occasion their expulsion—as purgatives of various kinds; those which tend to strengthen the stomach and intestines, and the system generally—as tonics or analeptics; and those which act specially upon the worms, dislodging, weakening, or killing them. These last are anthelmintics, properly so called. The principal medicines of this class are tin and iron filings, cowhage, kamala, cusso or brayera anthelmintica, oil of turpentine, male fern, calomel, gamboge, jalap, aloes, quassia, tansy, santonine, scammony and iron. (See WORMS.)

ANTHEMIS, *an'-the-mis* [Gr.], the chamomile plant. In Botany, a genus of plants belonging to the Nat. order *Compositæ*, sub-order *Tubulifloræ*, and distinguished by having the scales surrounding the flower, heads membranous at the borders, like those of a chrysanthemum, from which genus it, in fact, differs chiefly in the receptacle of the flower being furnished with little chaffy projections. The most important plant of the genus is *A. nobilis*, the common chamomile, which is extensively cultivated for the sake of its flowers. It is an indigenous perennial, flowering from June to September, and growing on open gravelly pastures and commons. The *capitula*, which are commonly termed flowers, are each composed of a number of tubular yellow florets, arranged on a receptacle, and surrounded by a circle of ligulate white florets. The double variety is produced at the expense of the tubular florets, which

become converted into ligulate florets. The single flowers are to be preferred for medical purposes, as the central yellow florets contain much more volatile oil than the white ones. Both leaves and flowers possess a strong but not unpleasant aromatic odor, and a nauseous bitter taste. The principal constituents of the flowers are volatile oil, tannin, and bitter resinous matter. The oil, which is procured by distillation, is stimulant, tonic, and antispasmodic, alterative and emetic, and is frequently used in the preparation of tonic and cathartic pills, and to relieve flatulence, griping, and eructation. The extract and infusion of the dried flowers have the same properties as the oil, and are used for the same purposes. The infusion is formed by half an ounce of the flowers to ten fluid ounces of boiling distilled water, infused in a covered vessel for fifteen minutes, and then strained. It is also employed externally for fomentation. The infusion taken internally is an aromatic bitter of undoubted tonic properties, and without nauseousness. In simple debility of the stomach and loss of appetite, chamomile tea, if not used too frequently and for too long a time at once, is a safe and good remedy. From 5 to 10 drops of the essential oil of chamomile dropped on sugar, is a useful and not unpleasant carminative. (See CARMINATIVES.) The preparations of chamomile are used in dyspepsia, intermittent and typhus fevers, in flatulence, colic, spasms of the stomach, hysteria, nervous diseases, and in painful dysmenorrhea. It is also recommended in every case in which it is desired to prevent too abundant or too long continued suppurations.

PRINCIPAL PREPARATIONS.

Fluid extract.....	Dose, half to one teaspoonful.
Solid "	" four to twenty grains.
Pills, two grains	" one to four pills.
Infusion	" one to four fluid ounces.

ANTHRAX. (See CARBUNCLE.)

ANTI, *an'-ti*, a Greek word signifying against, and frequently used in compound medical terms, as anti-bilious, anti-spasmodic, medicines that tend to counteract biliousness, spasms. (See BILIOUSNESS, SPASM, ETC.)

ANTIDOTE, *an'-te-dote* [Gr. *anti*, against, and *dotos*, given], in Medicine, a term applied to remedies or preservatives against sickness; but more particularly to substances which counteract the effects of poison. Antidotes are of two kinds (1), such as act chemically, and by decomposing the poison render it inert; and (2), such as act mechanically by simply covering the mucous surface of the intestines, and thus protecting them from the action of the poison, and preventing its absorption into the system. Of this last are oleaginous, albuminous, gelatin-

ous substances. It has lately been discovered that certain poisons act antagonistic to other poisons. In 1869, Dr. T. R. Fraser read a paper before the Royal Society of Edinburgh, "On the antagonism between the actions of Physostigma (calebar beans) and Belladonna," describing a number of experiments which went to show that fatal doses of one of these poisons are counteracted by the administration of the other. (See POISONS AND THEIR ANTIDOTES.)

ANTI-EMETICS, *an-ti-e-met'-iks*, medicines which prevent or stop vomiting. The most effectual anti-emetics are, opium in some of its forms, camphor, peppermint, essence of cinnamon, essence of tansy, and the carminatives in general. (See CARMINATIVES.)

ANTI-FAT REMEDIES. (See FUCUS VESICULOSUS, CORPULENCE.)

ANTIMONIAL POWDER, *an-te-mo'-ne-al*, fever powder. This material is supposed to be the same thing as the James' powder. The powder, when good, is white, and without smell or taste. The gray powder is an inferior article. The chemist obtains antimonial powder by heating the sulphuret of antimony and the shavings of hartshorn, first to a red, then to a white heat, in an earthen crucible. It is composed of the rust or oxide of antimony, and the phosphate of lime. The sulphuret of antimony is a native ore, of a bluish color, and metallic lustre. The phosphate of lime is the material of which bones are chiefly composed, as well as horn. The antimonial powder has the property of raising a sweat in a very high degree. In large doses it is emetic and cathartic. It has a tendency to increase all the secretions. In fevers it is a very important medicine. In low, malignant fevers it is not so appropriate, as in those of an inflammatory nature. Dose: for an adult, 6 grains; for a child one year old, 1 grain; two to four years old, 2 grains; and from four to twelve years old, 4 grains. The powder may be administered in syrup, molasses, or thick gruel.

ANTIMONIAL WINE is a solution of tartar emetic in wine, 2 grains to the fluid ounce; in many cases, it is a convenient preparation, but of course liable to the same dangers as the watery solution; it is much—too much, used popularly, especially as an emetic. In inflammatory diseases, the amount of wine which must be given with each dose is objectionable. It is most useful as a simple diaphoretic, given at bedtime, in doses of from 10 to 30 drops, and combined with half an ounce of spirit of mindererus. (See ANTIMONY.)

ANTIMONY, *an'-te-mo-ne*, is a brilliant bluish-white metal, symbol Sb, from the Latin *stibium*; atomic weight, 129; specific gravity, 6.7. It fuses at 850° F. It is so brittle that it may be reduced to powder by being pounded in a mortar. It volatilizes at a red heat. It is a bad

conductor of electricity and heat. When heated in air, it burns, and gives off copious white fumes, consisting of teroxide of antimony. It is also oxidized by nitric and sulphuric acid, and dissolved by aqua regia. In its chemical relations it is allied to nitrogen, phosphorus, and arsenic, and forms, with the last, one of the connecting links between the metallic and non-metallic elements. It forms three oxides, viz: 1. *Teroxide of antimony*, SbO_3 , a grayish-white powder, which is procured by boiling the metal with sulphuric acid, and evaporating to dryness. 2. *Antimonic acid*, SbO_5 , a pale yellow powder, tasteless and insoluble, made by adding nitric acid to the tersulphide, and driving off the excess of nitric acid by heat. 3. *Antimonious acid*. If antimonic acid be heated strongly, a compound is produced containing antimonic acid, combined with teroxide of antimony. This is erroneously called an acid, but is really either a teroxide of antimony or an antimoniate of antimony, *i.e.*, either SbO_4 or $\text{SbO}_3 \cdot \text{SbO}_5$. *Terehloride of antimony*, or *butter of antimony*, SbCl_3 , is formed by heating the tersulphide with hydrochloric acid. It is very deliquescent, and forms a buttery mass, whence its commercial name. *Tersulphide of antimony* occurs native in gray lead-colored masses, and is the chief ore from which antimony is procured. The hydrated tersulphide, mixed with the teroxide, is an amorphous red powder, and was formerly used in medicine under the name of *Kermes Mineral*. The principal medicinal preparations of antimony are the *teroxide* or *oxide of antimony*, called also Flowers of Antimony, given in doses of 3 to 10 grains, in the form of powder or pill; *antimonial* or *James' powder*, formed of one part of oxide of antimony, and two parts of phosphate of lime, mixed and given in doses of 3 to 10 grains; *solution of chloride of antimony*, composed of one pound of black antimony, or prepared sulphuret of antimony, and four pints of hydrochloric acid, sometimes used externally, as an active caustic, but never administered internally; *sulphureted antimony*, composed of 10 ounces of black antimony, $4\frac{1}{2}$ pints of solution of soda, and of diluted sulphuric acid, and distilled water, a sufficient quantity of each—dose, 1 to 5 grains; *tartrate of antimony*, composed of 5 ounces of oxide of antimony, 6 ounces of acid tartrate of potash, and 2 pints of distilled water, given as a diaphoretic, in doses of one-sixteenth to one-sixth of a grain; as an emetic, 1 to 2 grains. *Antimonial wine* is composed of 40 grains of tartrated antimony to one pint of sherry; dose, 10 to 30 drops. The effects of antimonial preparations are all similar in their nature. In small doses they are stimulating, diaphoretic, and expectorant; in larger doses, emetic. They are frequently valuable in colds, catarrhal affections, by stimulating the secretion of fluids by the skin and mucous membranes. The most common and the

safest forms in which antimony is used, are *James' powder*, and the tartrate, or *antimonial wine*.

Tartar emetic, or tartarized antimony, the most powerful of all the preparations of antimony, is a preparation which stands without a rival as the controller of some forms of inflammation. A compound salt of antimony, potash, and tartaric acid, it is formed in crystals, but usually sold as a white powder. It is sufficiently soluble in water to be conveniently administered in that fluid, which should always be used soft or distilled; a simple solution of the medicine is preferable in most cases. In large doses, tartar emetic acts as a powerful irritant poison, causing intense nausea, vomiting, severe pain in the bowels, purging, bloody stools, and extreme general depression; and even in comparatively small doses, these effects are sometimes liable to be developed in degree, especially in children. Great caution, therefore, is required. In case of a poisonous, or overdose of tartar emetic having been swallowed, the best remedy is some astringent infusion—Peruvian bark, nut galls, or strong tea. There is considerable variation in the strength of the dose of tartar emetic given by medical men; when, under necessity, it is dispensed by others, the sixth to the eighth of a grain only, should be given to an adult. A convenient form, is to dissolve 2 grains of the salt in $\frac{1}{2}$ a pint of soft water slightly warmed, and of this, to give a tablespoonful every three or four hours, so as to keep up continued nausea. Vomiting may follow the first dose or two, but after that, in most cases, the stomach becomes tolerant of the remedy. By giving tartarized antimony dissolved in a moderately small quantity of water, its irritant effects are less liable to be exerted upon the bowels, and should they come on, a few drops of laudanum, if otherwise admissible, must be given in some demulcent, barley or rice-water, and the demulcent alone continued as common drink. To children, tartarized antimony must be administered with great caution, and is better avoided by the unprofessional, except in the extreme cases of croup, or severe inflammation of the lungs, plainly existing, and occurring at a distance from proper medical assistance. In the former alarming disease, tolerably full doses are required to make a quick impression upon the system, and to induce speedy vomiting. For a child of six or seven years, a single grain must be dissolved in an ounce of water, and a teaspoonful of the solution, given either alone, or in a little water as drink, every quarter of an hour, till free vomiting is produced. In inflammation of the lungs, half the dose must be given; but this advice, let it be remembered, applies only to the severe diseases above mentioned, when occurring at a distance from medical aid. The practice of administering antimony to children, generally is not well, unless under medical sanction, and in those of

weak constitution may be productive of serious or fatal results. For a simple emetic, antimony is seldom well adapted, and should not be used when others are obtainable.

ANTIMONY, ANTIDOTES FOR. (See POISONS AND THEIR ANTIDOTES.)

ANTIPATHY, *an-tip'-a-the* [Gr. *anti*, and *pathos*, feeling], in its widest sense, denotes the natural dislike or aversion which an animate being entertains for some particular object; as the antipathy of sheep to wolves, of a turkey-cock to the color red. In the human species we frequently meet with remarkable cases of antipathy by certain individuals to objects which are grateful or indifferent to the generality of mankind. Thus, some have an antipathy to certain kinds of food, as butter or eggs; to certain animals, as toads, mice, spiders; to certain tastes, smells, sounds, etc. In some cases, the antipathy is so strong as to produce sickness or fainting. Doubtless, many of these feelings may be traced to early training, as when children are frightened with certain objects, or nauseated with certain kinds of food. But antipathy is not always a conscious caprice which may be removed by an effort of the will, or by habit, for it is sometimes found that the effects of the presence of these objects are manifested on the individual, though their presence be unknown, and that substances for which he feels an antipathy, when partaken of unconsciously, may produce in him exactly the same symptoms as if he had partaken of them knowingly. It is difficult to account for this, except on the principle that there lie, beyond the sphere of our consciousness, feelings and impressions which only become known to us by their effects. In order to overcome such antipathies, which may otherwise become the source of much pain or annoyance to the individual, it is necessary to accustom him gradually to the object of dislike from early years; and in this way, almost any antipathy may be overcome. Antipathy is sometimes also used to denote that mode of treating disease by means of opposites, or medicines that produce an opposite effect to the character of the disease; as purgatives to relieve constipation, narcotics to ease pain.

ANTIPHLOGISTICS, *an-ti-flo-jis'-tiks* [Gr. *anti*, and *phlogosis*, inflammation], is a term applied to such remedies as tend to remove, lessen, or prevent inflammation; as blood-letting, purgatives, low diet, etc. The antiphlogistic mode of treatment is now much less resorted to than formerly, medical men having come to see the necessity rather of supporting than of lowering the vital powers. (See INFLAMMATION.)

ANTISCORBUTICS, *an-ti-skor-bu'-tiks* [from *anti*, against, and *scorbutus*, a barbarous Latin word for scurvy], a term applied to remedies against scurvy. (See SCURVY.)

ANTISEPTICS, *an-ti-sep'-tiks* [Gr. *anti*, against, *sepein*, to putrefy], are the means or substances by which the decay or putrefaction of dead vegetable or animal substances is prevented or checked. There are three conditions which favor putrefaction—1, a certain degree of warmth; 2, air; 3, moisture; by the absence of one or more of which its progress is retarded or arrested. The preservative power of cold is observable in animal or vegetable substances imbedded in the ice; and the packing of fish with ice is a common means adopted for preserving them. The exclusion of air is another means of checking putrefaction. In this way, meats are frequently preserved by being put into tin canisters, which, after the air is carefully extracted, are soldered down. Again, substances may be preserved by the abstraction of moisture; as in plants, dried fish, bacon, etc. The more important chemical antiseptics are alcohol, salt, nitre, alum, creosote, arsenic, corrosive sublimate, sulphate of copper, chloride of zinc, chloride of lime, and carbolic acid. Cold acts as an antiseptic. (See PUTREFACTION.)

ANTISPASMODICS, *an-ti-spas-mod'-iks* [Gr. *anti*, and *spasmos*, a spasm], in Medicine, are those remedies which are employed to allay or remove spasms. Spasms arise from various causes, and hence the remedies are different. They may be caused by irritation in the intestinal canal by worms, etc., and hence purgatives or anthelmintics are to be used. Anodynes or narcotics, as opium or belladonna, serve to deaden the nervous irritability to which spasms are frequently owing. Sometimes they arise from mere debility; and hence, strengthening diet, and tonics, as nitrate of silver, sulphate of zinc, nitrate of bismuth, quinine, etc. (See SPASM.)

ANTRUM OF HIGHMORE, *an'-trum*. *Antrum Maxillæ superioris*, maxillary sinus, a large cavity in each superior maxillary bone between the eye and the roof of the mouth, lined by a mucous membrane. The maxillary sinuses are liable to several morbid affections. Sometimes their membranous lining inflames, and secretes a great quantity of mucus or pus. Various polypi, fungi, and other tumors are produced in them. Their bony parietes are occasionally affected with exostitis, or caries. The antrum is subject to abscess, which is accompanied with great pain and swelling, ending in caries of the palate, nasal plate, etc., whereby the pus is evacuated. Inflammation in this cavity may arise from cold, or take place without any apparent cause, but is generally produced by the irritation of decayed teeth, or from blows upon the cheek.

Treatment.—It may be remedied by extracting a molar tooth, and perforating with a strong, sharp-pointed instrument, through its socket, the cavity. After the pus is discharged, inject the cavity with tepid

water, soap and water, or a weak solution of chloride of soda. Should the discharge be profuse or fetid, there will be reason to suspect that there is some loose piece of bone, for which search should be made with a probe, and if found, removed at once, the aperture being enlarged if necessary. Abscesses in the antrum sometimes break through into the mouth or nostril, or they may point externally and discharge through the cheek; but generally, an artificial opening will be required, and surgical aid necessary.

ANUS, *a'-nus* [Lat.], in Anatomy, is the lowest part of the alimentary canal, forming its outlet. It is surrounded by a muscle, called the *sphincter ani*, by which it is kept close, except when the bowels are being evacuated. When paralysis, or other disease, attacks this part so that it cannot perform its function, the evacuations become involuntary. The anus is not unfrequently the seat of troublesome disease, as fistula, piles, etc. (which see). Sometimes, particularly in delicate children, the lower part of the intestines are apt to protrude out of the body, which is called *prolapsus ani*. (See PROLAPSUS ANI, RECTUM.)

ANXIETY, *ang-zi'-ete* [Lat. *ango*, to vex, to trouble]. In medical language this term is applied to a painful restlessness and inquietude, usually accompanied with a sense of weight in the præcordial region.

AORTA. (See ANATOMY.)

AORTITIS, *a-or-ti'-tis*, inflammation of the aorta. An extremely obscure disease, usually associated with disease of the heart, lungs, and pleura, and resulting in aneurism and other organic and fatal consequences.

Symptoms.—Increased action of the heart, dyspnœa or difficult respiration, uneasiness in the course of the artery, and violent pulsations.

Treatment.—Counter-irritation with tartar-emetic ointment (which see), issues, blood-letting, rest, antiphlogistic treatment.

APERIENT, *a-pe'-re-ent* [Lat. *aperio*, *aperiens*, to open], whatever opens the bowels gently—a laxative in contradistinction to purgatives and cathartics, which act strongly. (See CATHARTICS.)

APERIENT AND CATHARTIC MEDICINES, ABUSE OF. (See CATHARTICS.)

APERIENT MIXTURE. Dissolve 1 ounce of Epsom salts in $\frac{1}{2}$ pint senna tea; take a quarter of the mixture as a dose, and repeat it in three or four hours if necessary.

Another, suitable for spring. Ingredients: 2 ounces of Epsom salts, 2 drams of calcined magnesia, 60 drops of essence of peppermint, $\frac{1}{2}$ pint of peppermint water, and 1 quart of spring water. Mix well together. Dose, 1 wine-glassful every morning.

APERIENT PILLS. Ingredients: Compound extract of colocynth 16 grains, submuriate of mercury (calomel) 4 grains. Mix these and divide them into five pills. Take two at bedtime and one the next morning, and repeat the dose if necessary.

APERIENT POWDER, for a child. Scammony, 3 grains; jalap, 3 grains; rhubarb, 3 grains; ginger, 1 grain.

APHONIA, *a-fo'-ne-a* [Gr. *a*, without, and *phone*, voice], a deprivation or loss of voice.

Causes.—It may arise from various causes, as from a shock or fright, or it may be a hysterical affection. Disease of the brain is also not an unfrequent cause of aphonia. It may also be owing to disease, inflammation, or ulceration of the vocal chords, or parts adjoining. The instrument called the laryngoscope now throws much light upon this form of the disease by revealing the condition of the throat. Many persons are peculiarly subject to loss of voice by exposure to cold.

Treatment.—For its relief, confinement to the house, or to bed, if accompanied by feverish symptoms, is required. The inhalation of the steam of hot water, and the application of mustard over the throat, are useful remedies. In inflammation or ulceration about the vocal chords, a solution of from 40 to 80 grains of the crystals of the nitrate of silver to an ounce of pure water, is recommended to be applied by means of a curved camels' hair brush. If upon examination of the throat there be found no signs of inflammatory action, change of scene and air, with the internal administration of tonics, and the cold shower bath will be found very useful.

Take of Sulphate of iron.....	Sixteen grains.
Sulphate of quinine	Twelve grains.
Dilute sulphuric acid.....	One and a half drams.
Compound tincture of lavender.....	One dram.
Pure water.....	Eight ounces.— <i>Mix.</i>

Dose, 2 tablespoonfuls to be taken three times a day. When the tonsils are inflamed, the following gargle may be used:

Take of Dilute sulphuric acid.....	Three drams.
Compound tincture of lavender.....	Two drams.
Pure water	Half a pint.— <i>Mix.</i>

To be used frequently. After using this application, the mouth should be always rinsed out with cold water, to prevent the acid exerting any injurious influence upon the teeth. (See CLERGYMAN'S SORE THROAT.)

APHTHA INFANTUM. (See THRUSH.)

APHTHA LACTEA. (See NURSING SORE MOUTH.)

APIUM, *a'-pe-um*, the name of a genus of plants, family *Umbelliferae*.—*A. graveolens*. Apium Smallage. The roots, etc., are said to be

aperient and carminative; the whole plant is acrid and poisonous. Celery is a variety produced by cultivation.—*A. Hortense*, common parsley: the seeds possess aromatic and carminative powers, but are seldom used.

APNŒA, *ap'-ne-a* [Gr. *a*, and *pneo*, I breathe,] denotes, properly, deprivation of breath, or suffocation. (See SUFFOCATION, ASPHYXIA, DROWNING, ETC.)

APOCYNACEÆ, *a-pok-e-na'-see* [Gr. *apo*, against, *kuon*, dog], in Botany, the dogbane order of dicotyledonous plants, included in the sub-class *Corollifloræ*—trees or shrubs generally having milky juices. The dogbanes are natives principally of tropical regions, a few only occurring in northern latitudes. Some of the plants of this order are intensely poisonous, and all are to be suspected, though a few yield edible fruit. Some are drastic purgatives, and in some the bark is tonic and febrifugal. They have usually large showy flowers, and are on that account cultivated in our hothouses. Caoutchouc, or india-rubber, is prepared from the milky juice of several species. The two principal varieties are *Apocynum Androsæmifolium*, or bitter root, which is alterative, diuretic, diaphoretic, emetic, tonic and laxative. It is used in the treatment of chronic hepatic affections, scrofula, jaundice, amenorrhœa, dyspepsia, syphilitic affections, dropsy and rheumatism. Dose: Fluid extract, tonic, 10 to 20 drops; fluid extract, diaphoretic, 15 to 25 drops; solid extract, 2 to 8 grains.

A. cannabinum, or Indian hemp, a powerful tonic, diaphoretic and emeto-cathartic, inducing a tendency to sleep, independent of the exhaustion consequent upon vomiting. It has been successfully used in intermittent fever and ague, dysentery and enteritis, or inflammation of the bowels. Dose: Fluid extract, tonic, 5 to 20 drops; fluid extract, emetic, 20 to 30 drops. Dose of decoction, $\frac{1}{2}$ a wine-glassful. (See CAOUTCHOUC.)

APOCYNIN, *a-pok'-e-nin*. The active principle obtained from the *A. Androsimæfolium*, or bitter root, and used in chronic hepatic affections, scrofula, jaundice, dropsy, amenorrhœa, and rheumatism. Dose, from $\frac{1}{2}$ grain to 2 grains.

APOPLEXY, *ap'-o-pleks-e* [Gr. *apoplexia*, a sudden blow, a privation of sense and motion.] This term is used to signify a peculiar form of nervous disease due to pressure upon the brain from various causes, marked by a sudden loss of thought and voluntary motion.

Causes.—Apoplexy is due to pressure on the brain as previously stated, and this may be the result of the effusion of some of the fluid part of the blood, or of blood itself. The third form, in which there is no loss of consciousness, is due to softening of the brain from disease of the arteries or inflammation.

Apoplexy is transmitted from parent to offspring—it occurs in men of a peculiar build, in those who are short, stout, and thickset, with large heads, florid faces, and short, thick necks. It rarely happens before the age of thirty, and is most frequent between the ages of fifty and sixty. It may be brought on by a diseased state of other vital organs of the body, as the heart, lungs and kidneys. Intemperance greatly favors its onset. Before the actual occurrence of an attack of apoplexy, people generally manifest premonitory symptoms of their liability to cerebral disease. They begin to suffer from headache, nausea, giddiness, retchings, eructations, their sense of sight and hearing becomes impaired, and there may be a slight attack of paralysis; there are complaints of numbness and drowsiness, and the disposition and habits are altered—the brave man becoming cowardly, and the wise man and the man of common sense foolish and hazardous.

Anything which increases the activity of the circulation may be an exciting cause of apoplexy; all kinds of violent exercise, as running, rowing, and horseback exercise must be avoided; there must be no obstruction to the free descent of blood from the head, and a person by nature predisposed to this affection should not be allowed to strain or hold his breath, as in playing on wind instruments. The course of the blood in the capillaries of the lung, and in the brain also, is retarded, or actually prevented by vomiting, laughing, coughing, and sneezing, and in this way many forms of lung disease predispose to this nervous affection. Violent emotion and the excitement of drunkenness must be avoided. An attack of apoplexy is sometimes brought on by certain postures of the body hindering the downward current of blood from the head, such as stooping and twisting the neck. A few months since the writer had under his care and treatment a man of apoplectic build, who had arisen in the morning from sleep apparently quite well after a good night's rest, but in the course of dressing, when stooping to pull on his boots, he suddenly fell back, having lost all power of sensation and voluntary motion in the whole of the left side of the body.

Apoplexy is more frequent in the colder than in the warmer seasons of the year, for the following reasons: in the first place, the cold atmosphere of winter drives the blood from the surface of the body, and leads to internal congestion; and secondly, chest disease in all its forms, and with all its symptoms, cough, difficulty of breathing, leading to venous congestion of the cerebral vessels, is more prevalent during the colder months.

Symptoms.—There are three distinct forms of attack: in the first, the patient is suddenly stricken down, deprived of sense and motion, he has a slow but full pulse, his breathing is stertorous, and he is like a

person in a deep sleep; the second form of attack sets in with acute pain in the head, due to the giving way of a vessel in the brain, the patient is pale and faint, and troubled with nausea and vomiting; these symptoms are generally recovered from after a short space of time, but the headache does not cease, and in due time after blood has been poured out from the ruptured vessel upon or into the substance of the brain, the patient becomes heavy, stupid, drowsy, and forgetful, and sinks into a sleepy state, the apoplectic condition being fully arrived at, as in the previous form of this disease. When apoplexy commences in this way, the life of the patient is in great danger, for it usually proceeds to a fatal termination, a large quantity of blood being extravasated from the gaping vessel. In the third mode of attack there is a sudden loss of voluntary motion in the whole of one side, and the function of the nerves of sensation of that side become more or less impaired, varying in degree from mere tingling or numbness to perfect loss of feeling, but there is no loss of consciousness; the faculty of speech is impaired. This state of things may terminate in perfect recovery, in the limbs being permanently palsied, or may run into the apoplectic state described below. When the apoplectic state is fully formed, the patient is perfectly unconscious, he answers no questions, his pulse is slow and irregular, the act of inspiration is accompanied by snoring or stertor, and during expiration the cheeks are puffed out by the passage of air from the lungs; his countenance is livid, the pupils contracted, and the limbs powerless. The bowels are confined, but the urine flows away involuntarily.

Treatment.—Remove the patient into a cool and airy room, gently raise his head, and remove all articles of clothing preventing the free escape of blood from the head; if the patient be strong, young, healthy, vigorous, of full habit, and the pulse be full and hard, and if there be at the same time signs of plethora within the head, blood may be taken from the arm. In many cases blood-letting is contra-indicated, the patient being already well advanced in years and in a reduced state of health. In such cases we must either content ourselves in cupping the nape of the neck or in applying a few leeches to the head, or give up altogether the idea of abstracting blood, and must apply a blister to the back of the neck. When the invalid is not much reduced, great advantage will be derived from the action of an active purgative, and this ought to be given at once, if possible, in all cases; 10 grains of calomel is a convenient form of medicine for this purpose, and may be readily placed upon the back of the tongue: or a drop of croton oil placed upon a small piece of loaf sugar may be sucked down by the patient. Should he be unable to swallow, strong, purgative, stimulating

enemata may be thrown up the bowels. In those cases of loss of power over one side, with no loss of consciousness, which are due to softening of the brain, bleeding is unnecessary, but they require quietude and composure, a blister may be placed upon the back of the neck, the purgative treatment as previously described persevered in, and beef-tea, broth, toast, arrowroot, gruel, and tea given at short intervals. If the patient be faint and in a state of syncope, the following stimulating mixture may be given :

Take of Carbonate of ammoniaEighteen grains.
Pure water.....Six ounces.—*Mix.*

Let two tablespoonfuls be taken every three or four hours.

Apoplexy occurring in aged people and debilitated subjects, must be treated by stimulating medicine and nutritious food ; a blister or seton may be applied to the back of the neck, and the bowels freely acted upon by a brisk purgative. Cold lotions applied to the head will often give great comfort to the feelings of the patient, and alleviate his symptoms. In the more chronic form of apoplexy, after the more acute stage of the disease has passed away, and the muscles in various parts of the body remain in a weak and palsied state, iron and quinine will often be found of great service, thus :

Take of Sulphate of iron.....Twelve grains.
Sulphate of quinine.....Twenty grains.
Dilute sulphuric acid.....One teaspoonful.
Pure water.....Six ounces.—*Mix.*

Give two tablespoonfuls three times a day. Or,

Take of Sulphate of quinine.....Twenty grains.
Tincture of muriate of iron.....One teaspoonful.
Dilute hydrochloric acidHalf teaspoonful.
Pure water.....Six ounces.—*Mix.*

Give two tablespoonfuls every six hours.

Galvanism to the affected muscles, and the administration of strychnine internally, will assist the palsied limbs in regaining their power of motion. Strychnine may be safely given thus :

Take of StrychnineOne grain.
Confection of rosesOne teaspoonful.

Mix thoroughly and make 15 pills, and let one be taken every night and morning. Or thus :

Take of Solution of strychnine.....Two teaspoonfuls.
Pure water.....Eight ounces.—*Mix.*

Take a tablespoonful night and morning.

Preventive treatment.—All are more or less liable to an attack of

this terrible disorder, but those who inherit a predisposition to it from their ancestry, should constantly be on their guard. Especially is this the case when one or more of the premonitory symptoms are present. Absolute rest and quiet are, under such circumstances, imperatively demanded. Violent physical exercise of any kind, lifting heavy weights, leaping, striking hard blows, playing on wind instruments, singing, long and loud talking, are all to be carefully avoided. Straining at stool is a common exciting cause, and therefore, the importance of those predisposed to apoplexy, by proper diet and regular habits, to guard against costiveness. Coughing may have the same effect, and consequently even a common cold, in such persons, should be immediately attended to. Large fires, crowded rooms, and even the direct heat of the sun favor the disease, and ought to be shunned. Even the warm bath cannot be safely indulged in. Exposure to cold is equally hazardous. All occupations or recreations which involve a great amount of stooping or twisting of the neck, occasioning giddiness or confusion of thought, should be carefully avoided. Excessive indulgence in alcoholic stimulants and venereal excitement, are frequent immediate causes also. When any of the premonitory symptoms referred to frequently recur, or do not speedily disappear, resort should be had to the best physician in the neighborhood for advice and treatment.

APOTHECARIES' WEIGHTS AND MEASURES. (See WEIGHTS AND MEASURES.)

APPARATUS, *ap-pa-ra'-tus* [Lat. *apparo*, to prepare], the instruments used in the practice of any art, as chemical apparatus, surgical apparatus. In Surgery, to certain methods of performing operations, as apparatus major, and apparatus minor—particular methods of operating for the stone. In Physiology, to a catenation of organs all ministering to the same functions, as the respiratory apparatus, the digestive apparatus.

APPETITE, *ap'-pe-tite* [Lat. *appeto*, I desire], in general denotes a desire of enjoying something that is believed or felt to be necessary to or conducive to our happiness; and is more particularly applied to that desire for food which, in a healthy state of the body, is felt at regular intervals; and which indicates the necessity of a fresh supply of food in order to compensate for the bodily waste that has taken place. In general, when not depraved, or perverted, or pampered, the appetite is a most valuable and faithful guide as to when, how, and to what extent nourishment is required. When disease comes on, the appetite usually flags, an indication from nature that the process of digestion cannot be carried on as before; and, therefore, in such cases, it is generally injudicious to press food upon one in these circumstances. In fevers,

and many other disorders, loss of appetite is one of the most frequent features; but sometimes it occurs as the principal or only characteristic; and then it is owing to a disordered state of the digestive organs.

The longings of appetite sometimes appear to be almost instinctive, especially in illness, particularly where there has been much or obstinate vomiting. The patient will express a strong desire for some article of food or drink which our preconceived ideas or theories would certainly forbid, but which being permitted, seems at once to agree. When the various morbid deviations from natural appetite are considered, such latitude requires of course great caution; but the fact should not be lost sight of: a variable appetite, at one time deficient, at another morbidly active, is scarcely consistent with health. In children, it is often indicative of worms. Depraved appetite consists in the longing for, or devouring substances not intended for food, such as chalk, slate pencils, cinders, earth, etc.; the symptom is not unfrequently a concomitant of the chlorotic diseases of young females. The "dirt eating" of tropical climates is another form of depraved appetite. (See DIGESTION, DYSPEPSIA, FOOD, DRINKS, HEALTH, DIET.)

APPLE. (See FRUITS, PYRUS MALUS.)

APPLE TREE. (See PYRUS MALUS.)

APYREXIA, *ap-e-reks'-e-a*, the intermission of an ague. Also, freedom or cessation of fever.

AQUA, *a'-kwa*, is the name given in Latin to water. Water, owing to its great solvent powers, is never found naturally in a perfectly pure state, but always more or less impregnated with foreign substances, and hence, the necessity, in most chemical pharmaceutical operations, of using distilled water—*Aqua Distillata*. This is obtained by taking a certain quantity of spring or river water, and distilling it in a copper still with a block-tin worm, rejecting the first twentieth part, and preserving the first three-fourths of the remainder. This is to be preserved in well-corked bottles. Frequently, however, rain-water, filtered through alternate strata of well-washed sand and charcoal, will answer equally well with distilled water; for frequently, in prescriptions, distilled water is ordered when there is no necessity for its use. Frequently distillation is had recourse to to extract and preserve the volatile oil of plants. A certain quantity of the plant is taken with, perhaps, two gallons of water and one half distilled. Thus, we have *aqua anethia*, or dill water; *aqua anisi*, or aniseed water; *aqua cinnamoni*, or cinnamon water. These are seldom used as active remedies, but more frequently as elegant mediums for the exhibition of less agreeable medicines. (See WATER.)

AQUA FORTIS. (See NITRIC ACID.)

AQUA REGIA. (See NITRO-MURIATIC ACID.)

AQUEDUCT, *ak'-we-dukt* [Lat. *aquæductus*, a water-course], this name has been given by anatomists to several canals in different parts of the body, but not very correctly, as several of them contain no fluid.

AQUEOUS HUMOR, *a'-kwe-us*, is the name given to that watery fluid of the eye which is situated between the back of the cornea and front of the lens. (See EYE.)

ARABIC, GUM, *ar'-a-bik*. Gum Arabic, gum Senegal, common sweet gum, obtained from Barbary, Morocco, and India. It exudes spontaneously from several species of acacia, as the *A. vera*, Arabica, Senegal, etc. It is found in pale, yellowish, hard, brittle, and shining fragments, soluble in water, and insoluble in alcohol. The mucilage is prepared by dissolving one part of gum in two of hot water. It is demulcent, and an excellent vehicle for suspending oily medicines, which it renders miscible with water.

ARACHNOID MEMBRANE, *a-rak'-noid* [Lat. *arachnoides*], a very thin and transparent membrane, investing the brain, medulla oblongata, and spinal cord. It is situated between the dura mater and pia mater. Over the whole surface of the brain the arachnoid membrane adheres so closely to the pia mater as to be scarcely separable from it; but in different parts of the base of the brain, especially about the tuber annulare, it is merely in contact with the pia mater, and can easily be raised by means of the blow-pipe. The arachnoid membrane does not insinuate itself between the convolutions of the brain. No blood-vessels or absorbents have hitherto been detected in it, although the phenomena of disease sufficiently evince that it is endowed with both. The inner surface of this membrane is constantly bedewed with a serous exhalation, and there is little doubt that, like other membranes of this class, it forms in its whole extent a closed sac.

ARALIA, *a-ra'-le-a*, a genus of plants belonging to the Nat. order *Araliaceæ*. It contains a considerable number of species—trees, shrubs and herbs, some of which yield useful products.

A. Hispida, or dwarf elder. The bark of the root of the dwarf elder is used in dropsy, gravel, and suppression of urine. Dose of the fluid extract, 1 to 2 teaspoonfuls. Dose of decoction, from 2 to 4 fluid ounces, three times a day.

A. Nudicaulis, or small spikenard, is a native of North America, and its roots are used popularly in the treatment of rheumatic affections. They are commonly known as false or American sarsaparilla. Dose of fluid extract, 1 to 2 teaspoonfuls. The decoction may be used freely.

The *A. Racemosa*, or spikenard, is alterative and gently stimulant. Used in cutaneous, rheumatic and syphilitic affections, and in

pulmonary diseases. Recommended as having been administered with considerable success in dropsies. Michaux cites it as sudorific. Dr. Sarazzin makes mention of it as very useful as a poultice in inveterate ulcers. Dose of the fluid extract, 1 to 3 teaspoonfuls; dose of the decoction, 1 to 2 fluid ounces, three times a day.

A. Spinosa, the angelica, or toothache tree, is a native of North America. The bark is used as a stimulant diaphoretic, and the berries are said to be useful in toothache, whence the name. Dose of the powder, 20 grains; of the tincture, 1 to 2 teaspoonfuls; of the infusion—made by infusing a teaspoonful of the powder in a pint of boiling water—a teaspoonful every hour till the desired effect is produced. (See DECOCTION.)

ARBOR VITÆ. (See THUJA OCCIDENTALIS.)

ARCHANGELICA, *ark-an-jel'-e-ka*, in Botany, the herb archangel, a genus of plants belonging to the Nat. order *Umbelliferae*. The species are mostly herbaceous and perennial, natives of the cold and temperate regions of the northern hemisphere. *A. officinalis*, the garden angelica, is an indigenous biennial, growing in watery places, but somewhat rare in this country. It flowers from June to September, the blossoms being greenish-white. Its root is large and fleshy, resinous, and pungently aromatic. The tender stems and mid-ribs of the leaves are boiled in syrup, and, when dried, constitute candied angelica, which, taken as a dessert, is a very agreeable stomachic. Large quantities of angelica are used in the preparation of London gin and the liquor known as “bit-ters.” The root is aromatic, stimulant, carminative and diuretic. It is used in flatulent colic, heart-burn, and as a remedy to promote menstruation. Dose of fluid extract, $\frac{1}{2}$ to 1 teaspoonful of the infusion, 2 fluid ounces, three times a day. (See INFUSION.)

ARCTOSTAPHYLOS. (See UVA URSL.)

ARECA, *a-re'-ka*, in Botany, a genus of plants belonging to the Nat. order *Palmaceæ*—the palms, containing two species, each remarkable for the purposes to which it is applied. *A. catechu*, the betel-nut palm, has been described as the most beautiful palm in India. The stem is remarkably straight, and often from 40 to 50 feet high, and generally about 20 inches in circumference. It is cultivated throughout India for the sake of its seeds, which are known as betel, areca, and pinang nuts. The nut is one of the ingredients in the famed masticatory of the East called betel (which see). Charcoal prepared from the nuts, and termed areca-nut charcoal, is used in this country as a tooth powder; but it is doubtful whether it is in any way superior to ordinary charcoal. An extract is made from nuts in the south of India, and constitutes one of the commercial varieties of catechu (which see.) *A.*

oleraceæ, the cabbage palm, is a native of Jamaica and other West India islands. The trunk, which is seldom more than six or seven inches in diameter, grows to a height of from 100 to 200 feet. The majestic palm is frequently cut down for the sake of the single terminal bud, called the cabbage, which is eaten either raw or boiled as a vegetable.

AREOLA, *a-re'-o-la*, a term applied medically to the inflamed circle which surrounds a vesicular or pustular elevation, such as that of the vaccine vesicle. Also applied to the colored circle surrounding the female nipple. Generally, not invariably, previous to pregnancy, this areola is light in color, but in the majority of cases, soon after conception it begins to darken, and in some individuals, especially in those of dark complexion, it becomes of a deep brown. The change of color in the areola is, therefore, classed amid the more certain signs of pregnancy, but as it has been known to exist in the virgin, and is not universally developed in the pregnant female, it can never alone be taken as a decisive proof, but only as corroborative, along with other symptoms. (See PREGNANCY.)

ARGENTUM, *ar-jen'-tum*, Lat. for silver. (See SILVER.)

ARGOL, *ar'-gol*, the crude tartar which is deposited by all wines as a crust upon the inside of the casks in which they are stored. Argol is the source from which are obtained tartaric acid and common cream of tartar, which is a tartrate of potash. Argol is dissolved in hot water, which, when cold, deposits the cream of tartar in small oblique rhombic prisms. (See CREAM OF TARTAR.)

ARISÆMA, *ār-i-se'-ma*, in Botany, a genus of plants belonging to the Nat. order *Araceæ*, the Arum family. The species *A. atropurpureus*, dragon-root, or Indian turnip, is a native of North America. From the tuber a nutritious fecula is obtained. In Medicine, the tuber is also occasionally used, being given internally as a stimulant in rheumatism and bronchial diseases, and being also employed as an application to aphthous affections in children. It is also recommended in flatulence, croup, whooping cough, asthma, bronchitis, colic, etc. Externally it has been used in scrofulous tumors, etc. Dose of powdered root, 10 grains, increased to 20 or 30 grains if necessary, repeated every three or four hours.

ARISTOLOCHIA *ā-ris-to-lo'-ke-a*, in Botany, birthwort, the typical genus of the Nat. order *Aristolochiaceæ*. Several species of this genus have been employed for centuries in Medicine, principally on account of their supposed emmenagogue properties; and hence the name birthwort. The rhizome and root-fibres of *A. serpentaria*, commonly called serpentary, or Virginian snake-root, are officinal, and have a warm, bitter cam-

phoraceous taste, and a strong aromatic camphoraceous odor. Serpentry was originally introduced as an antidote to snake-bites, but it is now known that it has no efficacy in such cases. It is a valuable stimulant, tonic, and diaphoretic, and is especially useful in fevers of a low typhoid character. It makes a valuable gargle in malignant sore throat. It is sometimes employed as a tonic in dyspepsia, and has proved useful in amenorrhœa. It is said by some to be a remedy for intermittent fever or ague, and also to have anthelmintic properties. It is commonly exhibited in the form of an infusion, tincture, or fluid extract. The infusion is made of $\frac{1}{4}$ ounce of bruised root to 10 fluid ounces of distilled boiling water; dose, 1 to 2 fluid ounces. The tincture is composed of $2\frac{1}{2}$ ounces of root in coarse powder, and 1 pint of proof spirits; dose, $\frac{1}{2}$ to 2 teaspoonfuls; dose of fluid extract, $\frac{1}{4}$ to $\frac{1}{2}$ teaspoonful.

ARM, *ärm* [Lat. *brachium*], is that part of the upper extremity of the body which extends from the shoulder to the wrist. It consists of two portions—the arm, or *brachium*, properly so called, and the forearm, or *anti-brachium*; the former having one bone—the humerus; the latter two bones—the radius and ulna. (See ANATOMY.)

ARMORACIA, *ar-mo-ra-se-a*. in Botany, a genus of plants belonging to the Nat. order *Cruciferae*. The species *A. rusticana* is cultivated for the sake of the root, which is the common horseradish, so much used as a condiment. The plant is frequently met with, growing wild by the side of ditches and on the banks of rivers; but, from its bearing some resemblance to aconite, the latter has been mistaken for it; and cases of poisoning have occurred in consequence. The roots, however, of horseradish are larger and longer than those of aconite; and when scraped, have a very pungent odor. A volatile oil, resembling oil of mustard, may be obtained from horseradish by distillation, and there can be no doubt that all the valuable properties of the plant depend upon this principle. The odor of the oil is exceedingly powerful, that arising from a single drop being sufficient to fill a whole room. The root is considered to be anti-scorbutic, anti-rheumatic, stimulant, diaphoretic, and diuretic, and is frequently used in Medicine. Applied to the skin, it produces vesication. A syrup made with an infusion of the root and sugar has been used, with success, as a remedy for hoarseness, arising from relaxation. Burnett states that horseradish steeped in milk forms one of the best cosmetics. As a dietetic, it is used scraped, or in the form of a sauce, with roasted meat and fish. When eaten on an empty stomach it is deleterious. It is used as a tonic in debility of digestive organs. Dose of the root grated, 1 to 2 teaspoonfuls, three times a day.

ARM-PIT. (See AXILLA.)

ARNICA, *ar'-ne-ka*, in Botany, the name of a genus of plants

ing to the Nat. order *Compositæ*. The most important species is *A. montana*, known by the names of mountain-tobacco, and German leopard-bane. It is a perennial herbaceous plant, found growing in the meadows of the middle and south of Europe, and also of the western states of North America. The florets are of a yellow color, tinged with brown. The whole plant, when fresh, possesses a strong and disagreeable odor and an acrid, bitter taste. All parts of the plant have striking medicinal properties, but the root constitutes the part generally preferred. The preparation known as tincture of arnica, which is obtained by macerating one ounce of the root with a pint of alcohol, is now largely employed by the public as an external application for bruises and swellings; and notwithstanding the contempt with which its powers have been spoken of by eminent members of the medical profession, it has gradually gained ground among practitioners, and has now obtained a place in the new British Pharmacopœia. The leaves and flowers, though not much used internally, have been occasionally employed as a substitute for Peruvian bark. When taken internally it should be used with caution. It is a very energetic stimulant. In small doses, it accelerates the pulse, promotes perspiration, increases the secretions of the kidneys, etc. In Germany, it is used as a stimulant in typhoid fever and other adynamic febrile diseases, in chronic palsy and amenorrhœa; also as a tonic in rheumatism, and as a tonic and diuretic in the asthenic forms of dropsy. It has proved very useful in intermittent fever, also in nyctalopia and amaurosis, and in that disordered condition of the system which succeeds concussion of the brain from falls and blows. It has been recommended in diarrhœa, dysentery, nephritis, gout, chlorosis and diseases where there is debility, torpor or inactivity of function. Externally, it is used in the form of a fomentation, or diluted tincture or fluid extract to prevent or discuss local inflammation, and to prevent ecchymosis or discoloration of the skin from a bruise. Vegetable acids are recommended to counteract its poisonous effects. Dose fluid extract, 10 to 60 drops, three times a day.

AROMATIC CALISAYA WINE, *ar-o-mat'-ik kal-e-sa'-ya*, an agreeable and general tonic in convalescence for children and feeble persons, and prophylactic against intermittents. Valuable as a tonic during the summer months. Each fluid ounce contains the medicinal virtue of twenty-four grains of bark. Dose, for adults, a wine-glassful, two or three times a day, more or less, as may be necessary; and for children, in proportion to age and constitution.

AROMATIC COMPOUND, *ar-o-mat'-ik kom'-pound*, composed of ginger, cinnamon, cardamom, and other corrigents. Used principally for flavoring extracts, and counteracting the unpleasant taste of medi-

cines. Medicinally, applicable in griping of the bowels, etc. Dose, 1 to 2 teaspoonfuls.

AROMATICS, *ar-o-mat'-iks*, substances as plants, drugs, and medicines, which emit agreeable odors, and are usually characterized by a warm pungent taste. Such are the spices, ginger, cinnamon, pepper, balsams, frankincense, etc. They generally contain a peculiar volatile oil, mixed with resinous substances. The animal kingdom furnishes some aromatics, as ambergris, musk, civet, etc., but they come principally from the vegetable. They are employed in the manufacture of perfumery, and in medicine as antispasmodics, etc.

AROMATIC SPIRITS OF AMMONIA. (See AMMONIA.)

AROMATIC SYRUP OF RHUBARB, *ar-o-mat'-ik sir'-up ov roo'-barb*. This is probably the most agreeable form in which rhubarb is administered, especially for children. Dose for children, 1 teaspoonful; adults, 1 tablespoonful. (See RHUBARB.)

ARROWROOT, *ar'-ro-root*, the name given to various kinds of starch used as food by man. True West Indian arrowroot is obtained from rhizomes or root-stocks of the plant *Maranta arundinacea*, and is one of the purest and best known of the amylaceous substances. It forms a very firm jelly with boiling water, and, thus prepared, is a common article of diet for invalids and children, being nutritious and demulcent. The name arrowroot is derived from the fact of the bruised rhizomes of the plant being employed by the native Indians as an application to the poisons inflicted by arrows. East Indian arrowroot is obtained from the rhizomes of *Curcuma augustifolia*, and is sometimes called curcuma starch. The West Indian plant is, however, cultivated to some extent in the East, and supplies of the true arrowroot are brought from Singapore. Tahitian arrowroot is obtained from the plant named *Tacca oceanica*, and the substance called Portland arrowroot is extracted from the *Arum maculatum*, a common hedgeweed in England. In all these cases, the fecula consists of starch-grains, which are produced in great quantities, before the season of rest, in the succulent rhizomes or root-stocks of the plants. These grains are separated from the cellular tissue, and certain acrid juices, by a very simple process, which consists simply in washing the grated root-stocks. The best quality of arrowroot is procured from the West Indies, especially from Bermuda, whence it is imported in soldered tin cases. It is now also imported from East India, and an inferior kind is brought from Tahiti. Arrowroot is subject to much mixture and adulteration, but generally—as with potato-starch, etc., of a harmless character as regards the consumer. The “Lancet” periodical has recently, by means of its “Sanitary Commission,” thoroughly investigated the subject of these adultera-

tions. The best arrowroot ought to be pure white, slightly glistening in the mass, and the powder of which it is composed, collected together in small crumbs or lumps, which break down with a slight crackling sensation beneath the finger. Arrowroot is pure starch, and forms a peculiarly stiff jelly. As an article of sick cookery it is invaluable, where mild support is required without stimulation, and in convalescence and chronic disease.* There are few stomachs with which it disagrees, and infants both like and do well with it. At the same time, it is proper to caution against the too common error of trusting too much to the nutritive powers of arrowroot alone, especially for children. It may give support indirectly, that is to say, by supplying material for respiration and animal heat, it may save the tissues of the body, or it may even go to build up some of these tissues, but alone it can never make bone or muscle, for the simple reason that it does not contain the elements necessary for these constituents of the frame. A child fed exclusively on arrowroot, water, and sugar, and such has been the case, must become unhealthy, and, without fail, rickety. The case is abundantly altered, when, with arrowroot, milk is combined. In this fluid exists whatever is requisite for the animal frame—nitrogen for its muscle, phosphorus for its nerve, earthy salts for its bone. The combination of arrowroot with milk is one of the best which can be given to a child, or to an adult in the early stages of convalescence from illness. (See FOOD, STARCH, CHILD, COOKERY FOR THE SICK, ETC.)

ARSENIC, *ars'-nik* [Gr. *arsenikos*], the substance which, in commerce, goes by this name is the oxide of the metal arsenic, or arsenious acid. Arsenic was known in different combinations by the ancients, but has only lately been shown to be of metallic origin. It is, however, so unlike a metal in many of its properties, that certain French chemists consider it as belonging to the non-metallic elements. It conducts electricity, and possesses metallic lustre, and is very much allied to phosphorus. Arsenic is prepared in the state of arsenic acid or oxide, by roasting the arsenical sulphide of iron. Metallic arsenic possesses a brilliant gray lustre, which is unmistakably metallic. It may be reduced to powder in a mortar. When heated in close vessels, it sublimes unaltered; but in a current of air, it absorbs oxygen, and burns with a bluish flame, depositing a white mealy powder. A minute quantity of arsenic is added to lead, to diminish its cohesion, during the manufacture of shot. The only important combinations of arsenic are—*arsenious acid*, AsO_3 , the white arsenic of the shops; *arsenite of copper*, or Scheele's green; the *Schweinfurth green*, which is a double acetate of arsenic and copper; the *bisulphide*, or *realgar*, which is used in pyrotechny; and the *tersulphide*, or *orpiment*, which is the king's yellow of

the artist. Arsenic also forms a terhydride with hydrogen, analogous to the ammonia-like compounds formed by antimony and phosphorus. Arsenic forms the connecting link between the non-metallic elements and antimony, which is certainly only a little more metallic than itself.

Arsenic is a powerful irritant poison, causing vomiting, purging, and other distressing symptoms. One or two grains may cause death. Arsenic is perhaps more universally used than any other, for destroying life. Its tastelessness, cheapness, and the culpable facility with which it has hitherto been obtainable have combined to make it familiar. Much controversy has at times taken place respecting the effect of arsenic upon the palate; it is certain, the taste is very faint, but extreme irritation of the portions of the lining mucous membrane of the mouth and other parts, quickly follows its contact. The length of time after arsenic has been swallowed, that symptoms take to show themselves, varies much, depending in all probability upon the state of the stomach as to emptiness, or the reverse. Sometimes they appear in a few minutes, at other times not for hours. Poisoning by arsenic is distinguished by faintness, nausea, intense burning pain at the pit of the stomach, and vomiting of its ordinary contents, followed by that of a turbid brown fluid, and mucus, often streaked with blood; intense burning heat in the throat, and thirst; purging ensues, cold sweats, convulsions, death. The eyes may become inflamed, but this is more general when the case is prolonged, as it may be, in consequence of the small dose, or from other circumstances; in this case an eruption on the skin is not unfrequent. The symptoms of course vary, particularly that of pain, which occasionally has been almost entirely absent. It must, too, be remembered, that the symptoms of bilious cholera and those of arsenical poisoning, very closely resemble one another. When poisoning by arsenic is suspected, of course the first measure is to procure efficient medical aid. In the meantime, it is requisite to get as much of the poison as possible evacuated from the stomach; it is seldom necessary to produce vomiting, that most generally comes on soon; but if it has not done so, 25 grains of white vitriol—sulphate of zinc—if procurable, should be given at once, in a little water; if this is not done, a tablespoonful of mustard in water, or tickling the throat with a feather, should be resorted to; milk, which by its coagulation may envelope the poison, or thick mucilaginous drinks, olive-oil, alone or mixed with lime-water, may, any or all, be given, and with them, magnesia. The great object must be, to clear the stomach of the poison as thoroughly and speedily as possible, for unlike many other poisons, there is no chemical antidote to arsenic which can be relied on. A preparation of iron has been vaunted, but it is of doubtful efficacy; if either this, or the stomach-pump is used,

it will be in medical hands. In following the directions already given, the friends or neighbors of the poisoned person will be doing good service. Should the patient survive, and pass on to the second stage of arsenical poisoning, inflammation of the stomach, nervous symptoms, etc., will perhaps end life, or recovery may follow, but these changes must necessarily be attended to under medical guidance. White arsenic is not the only preparation of the metal by which poisoning occurs; the coloring substances known by the name of King's yellow, and Scheele's green, are both compounds of arsenic, and being frequently and culpably used in confectionery, have proved fatal. Similar symptoms occur, and similar treatment is to be followed as after poisoning by white arsenic. Whether in poisoning by arsenic, or by any other agent, the vomited matters should always be carefully preserved in a vessel by themselves, for medical inspection; and if there is any suspicion of foul play, some responsible person should place them under lock and key. Did those who perpetrate the crime of poisoning by arsenic, know beforehand, with what certainty the chemist can separate, for exhibition in a court of justice, the instrument of their wickedness, perhaps from the body of the victim, years after it had been buried; selfish fear, if no other consideration, might stop the deed.

The influence of a minute quantity of arsenic on the human frame is a very curious question. In Styria, it is a common thing for the peasants to take 12 or 13 grains per day of white arsenic, to improve their wind. They begin by taking a single grain per day, increasing the dose until they arrive at their maximum. It appears to do them no harm, so long as they relinquish the use of it gradually when they reach fifty or sixty years of age. If the doses are discontinued suddenly, death, with all the symptoms of arsenical poisoning, is the result.

In medical doses it is alterative, tonic, and antiperiodic; it is also a valuable remedy in diseases of the skin. The principal pharmacopœical preparations of arsenic are:—*Acidum arseniosum*, arsenious acid, or white arsenic, the dose of which is from $\frac{1}{60}$ to $\frac{1}{12}$ of a grain, in solution. *Liquor arsenicalis*, or *liquor potassæ arsenitis*, arsenical solution, or Fowler's solution; dose, from 2 to 8 drops. *Liquor arsenici hydrochloricus*, hydrochloric solution of arsenic; dose, 2 to 8 drops. *Ferri arsenias*, arseniate of iron; dose, $\frac{1}{16}$ to $\frac{1}{8}$ of a grain. *Sodæ arsenias*, arseniate of soda; dose, $\frac{1}{16}$ to $\frac{1}{8}$ of a grain. *Liquor sodæ arseniatis*, solution of arseniate of soda; dose, 5 to 10 drops. Arsenic should not be used as a medicine except under the careful guidance of a physician. (See SOLUTION OF IODIDES OF ARSENIC AND MERCURY, POISONS.)

ARSENIC IN WALL PAPER. The danger arising from paper hangings colored with arsenical green is now sufficiently well-known. It

is the flock papers which are most likely to be injurious, and of course, the more confined the room, the more likely the chance of mischief; but nearly all green wall papers contain arsenic. Chemical analysis has determined that as high as 15 grains of arsenic have been found in one square foot of wall paper. Arsenic is very volatile, and the air becomes impregnated with an imperceptible dust, and many people are subject to a slow form of poisoning, causing indigestion, diarrhœa, nausea, irritation of the mucous membrane, sore throat, congestion of the lungs, biliousness, palpitation, prostration of the nervous system, general debility, etc. Arsenic in wall paper often produces such serious conditions, when the cause is not suspected, either by the physician or patient. Another fertile cause of disease in wall paper, is the custom among some, of pasting one wall paper over another, causing rotten paste, bad smells, fungi which often produce fever. People generally are now so well aware of the deleterious effects of articles of dress colored with arsenical green, that danger from such a cause must be wilfully incurred. (See WALLS AND WALL PAPERS.)

ARTANTHE ELONGATA, *ar-tan'-the e-lon-ga'-ta* [*Matico*], the dried leaves of the artanthe elongata, a plant belonging to the Nat. order *Piperaceæ*. It is aromatic, tonic, stimulant, and styptic. Its therapeutical agency is highly recommended in hemoptysis, hematemesis, dysentery and hematuria, in doses of 1 dram of the powdered leaves, or 1 teaspoonful of the fluid extract four times a day. Hemorrhage from the nose or uterus has been arrested by the internal administration of matico, after other remedies had completely failed to control the bleeding. As an internal remedy it has also been successfully employed in diseases of the mucous membrane, as gonorrhœa, leucorrhœa, menorrhagia, catarrh of the bladder, hemorrhoids, and epistaxis. The leaves form a superior medicinal styptic for arresting hemorrhage from wounds, leech-bites, etc. The downy part of the leaf is said to be the most active part. Also applied to ulcers. Its essential oil is recommended in the treatment of gonorrhœa. Dose of the fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; of the infusion, 1 to 2 fluid ounces. (See INFUSION.)

ARTEMISIA, *ar-te-mizh'-ea* [from *Artemis*, one of the names of the goddess Diana], in Botany, a genus of plants belonging to the Nat. order *Compositæ*, and comprehending several interesting and valuable species. *A. absinthium*, the common wormwood, is an indigenous perennial, often met with in waste places and by roadsides. The flowers are arranged in globular heads, and are of a buff or yellowish color, blossoming in August. The principal constituents are a volatile oil, a bitter principle called absinthine, and carbonate of potash. The latter was formerly known as "salt of wormwood;" but it possesses no

specific virtue other than belongs to carbonate of potash generally; it is still, however, regarded as a patent remedial agent by the ignorant. The dried herb, or flowering-top, under the name of wormwood, is used as an aromatic bitter tonic, and as an anthelmintic. It is also employed in the preparation of liquors. The anthelmintic known by the names *Semen-seriphii* and *Barbotine*, consists of the flower-heads of *A. cærulescens*, a Mediterranean plant. *A. chinensis*, and other species, are stated by Lindley to yield the Moxa of China. (See MOXA.) The substance sold as wormseed, and known under the names of *semen-contra*, *semen-cinæ*, and *semen-santonicum*, consists of the broken flower-stalks, involucre, and flower-buds of *A. contra*, *pauciflora*, *lercheana*, *sieberi*, and *valiana*.

A. Abrotanum, or southernwood, is tonic and antispasmodic, and is employed in intermittents to promote the appetite, and in debilitated conditions of the digestive organs. Dose of fluid extract, 30 to 60 drops; powder, 10 to 20 grains; infusion, 1 to 2 fluid ounces, three times a day.

A. Absinthium, or wormwood, is anthelmintic, tonic and narcotic, and is used in intermittent fever or ague, jaundice, and for worms, also to promote the appetite. Externally it is useful in fomentations for bruises and local inflammations. Dose of fluid extract, 5 to 40 drops; solid, 3 to 5 grains; powder, 10 to 20 grains; infusion, 1 to 2 fluid ounces, three times a day.

A. Vulgaris, or mugwort, is anthelmintic, tonic, and deobstruent, and is said to be beneficial in epilepsy, hysteria, and amenorrhœa. Used externally in fomentations for bruises and local inflammations. Dose of fluid extract, 20 to 40 drops; powder, 10 to 20 grains; infusion, 1 to 2 fluid ounces, three times a day. (See INFUSION.)

ARTERIAL HEMORRHAGE, *ar-te'-re-ál hem'-or-ráj*. Arterial hemorrhage may be arrested by compression directly upon the bleeding point, and this should be tried until the surgeon's arrival, but it must be in positions, such as the hand, foot, etc., where pads can be firmly bound over the wound. These pads must be graduated, that is, a small firm one is to be placed directly over the bleeding vessel, over the first pad a larger, and one still larger over that, and the whole to be firmly bound with a bandage or ribbon—or strip of cloth of some kind; at the same time, the site of the wound is to be raised above the level of the body. Above all things, loose wrapping up is to be avoided, the wound had better be exposed to the air than enveloped in a hot poultice of clotted blood, which only causes it to bleed the more. Two cases which recently occurred in the writer's practice will illustrate the above directions:—1. A girl when cutting some bacon, slipped the knife and plunged it into

her hand, dividing one of the arteries; it bled fast, and when she was seen by the author some time after, a large quantity of blood had been lost; compresses and a bandage being at once applied, not another drop of blood was lost, the wound was undisturbed for a good many days, and quickly healed. 2. A man when sheep-shearing, had the shears driven into his hand by a plunge of the animal, and the artery which runs between the thumb and forefinger severed; he had to come three miles to the author's house, and must have lost above a quart of blood. In this case the vessel was tied, but in either of the cases, if, instead of the wound being loosely covered, and the hand kept down, some one had been sufficiently informed to tie a firm pad over the wound, until proper assistance was obtained, it could not fail to have saved either of these individuals a considerable amount of blood—and to a poor man, blood is money, he must pay the butcher some hard days work to make up a pound of the vital fluid. Various styptics to arrest bleeding are recommended, such as alun, matico, fungus, etc., but in arterial hemorrhage, pressure is more to be trusted to. Surgeons arrest hemorrhage from a cut artery by tying the ends with a ligature of silk or firm twine. This might be done in emigrant life under necessity. The bleeding point being distinctly seen, is by one person to be pulled forward, either by a pair of forceps, or by a hook-tenaculum (see INSTRUMENTS) made for the purpose, sufficiently far to allow of another individual tying it securely. The sailor's reef-knot is the proper one for the purpose. The end of the vessel next the heart is to be tied, but should the lower end bleed, as it may do, especially in a few hours after the accident, it must be tied also. The ends of the ligature must not be cut off, and the wound covered with a cloth dipped in simple water, till the surgeon's assistance—as it must be—has been procured. After arterial hemorrhage, a person should always be watched, with light during the night, and a handkerchief which could be tightened at any moment, kept closely round the limb. The application of water, unless it be ice-cold or nearly so, to a bleeding artery, is better avoided; free exposure to the air is preferable. In severe hemorrhage or flooding after delivery, compression of the aorta may be of much avail in preventing further loss of blood until the arrival of the medical man. The hand of an attendant must be firmly pressed into the centre of the abdomen, until the pulsation of the aorta is felt, and felt to be acting against the compression, and not beyond it. The pressure must not be relaxed for an instant. (See ARTERY.)

ARTERIOTOMY, *ar-te-re-ot'-o-me* [Gr. *arteria*, an artery, and *temno*, I cut], is applied to the opening of an artery for the purpose of drawing blood, and is distinguished from phlebotomy, or venesection, which is the opening of a vein. In ordinary cases, the latter is always preferable

to the former; but sometimes, when it is necessary to take a large quantity of blood from the system very rapidly, as in apoplexy, arteriotomy is adopted, and then it is generally the temporal artery that is selected. (See BLEEDING OR BLOOD-LETTING.)

ARTERITIS, *ar-te-rî'tis*, inflammation of an artery.

Symptoms.—Tumultuous vascular excitement, palpitations, heat, and throbbing in the course of the principal trunks, succeeded by collapse, and occasionally gangrene of the part affected, or of a limb.

Treatment.—Antiphlogistic, with arterial sedatives, as tartar emetic, digitalis, and colchicum. In the chronic form it is often complicated with other inflammations and diseases. This disease can only be treated by medical skill, hence a physician must always be consulted.

ARTERY, *ar'-te-re* [Gr. *aer*, air, and *tereo*, I keep], is literally an air-duct, and was a name applied by the ancients to certain vessels of the human body, which were believed by them to contain air, from their being found empty after death. Arteries are membranous cylindrical tubes, composed of three coats, viz.: the external, which is firm, strong, and elastic; the middle, which is muscular, contractile, and brittle; and the internal, which is brittle, smooth, and transparent, and lined with epithelium on the side washed by the blood. The action of the arteries, called the pulse, corresponds with that of the heart, and is effected by the contraction of their muscular coat and the great elasticity of their outermost one. Besides the arteries which carry the purified blood from the heart to all parts of the body, there is the pulmonary artery, which emerges from the right ventricle of the heart, and carries the impure blood from the heart to the lungs. The other arteries all spring from the aorta. The arteries are distributed to every part of the system, serving to convey nutrition, to compensate for the waste that is constantly taking place. An artery is a vessel which invariably conveys blood away from the heart, the blood, with one exception—in the pulmonary, or artery of the lungs—being bright red, “arterial,” and flowing in waves or pulsations, corresponding with the beats of the heart. When red florid blood flows, or is spirted from a wound in jets, an artery is certainly wounded, and the case is most probably serious. Blood from a vein is dark and black-looking, and flows in a continuous stream.

From the aorta, the main artery of the body, directly connected with the heart, various secondary vessels are given off, to supply the head and upper extremities, and the viscera of the chest and abdomen. Low down in the latter cavity, the aorta itself divides or bifurcates into the two large vessels which supply the lower limbs. From the secondary arteries other branches are given off, until, at last, by division and subdivision, the vessels become “capillary,” hair-like in their minuteness,

forming an intricate net-work, in which the arteries end and the veins begin. Arteries consist of three separate coats, an outer or protective, an inner or lining, and a middle, partly elastic and partly muscular. It is the thickness and firmness of this middle coat which chiefly distinguishes the artery from the vein.

As a general rule, the main arterial trunks run upon the anterior and inner surfaces of the body; some knowledge of their positions, and especially of those points in their course at which they can be most easily felt and compressed, may at times be useful to all. It is no uncommon thing for medical men to be called to accidents in which immense and injurious loss of blood has taken place from a wounded artery, which might have been saved to the sufferer by any one possessed of sufficient knowledge and presence of mind to put his thumb on the main trunk of the vessel. Wherever the finger is placed upon an artery, pulsation is felt.

In wounds of arteries of the head, such as upon the temples, there is the advantage of the bone, against which it is possible directly to compress the bleeding point, and when this can be done, it is the best method, otherwise pressure may be exerted according to the position of the wound, in front of the ear; or just behind the ear; or where the pulsation of an arterial branch may be found, as it winds over the edge of the lower jaw.

In wounds of the large carotid arteries of the neck, pressure is, unfortunately, of little avail; there is no point to press against, it is impossible to compress the artery without at the same time compressing the large vein, and from the size of the vessel and its proximity to the heart, the current of blood has much power. The result may be felt beating on each side of the windpipe.

In wounds of the large arteries about the shoulder or arm-pit, pressure must be made with the thumb, or handle of a moderate-sized key, wrapped in a few folds of handkerchief, upon the large vessel, just behind the middle of the collar-bone, and where it passes over the first rib. In the event of a wounded artery lower down in the arm, the compression may be exerted over any portion of the course just inside the large muscle. At the bend of the arm, the artery divides into two main branches, one of which, the pulse artery, runs towards the thumb; the other, towards the little finger, in which courses both may be felt; from the free intercommunication of the arteries of the hand, pressure is more certain to arrest hemorrhage if exerted upon the single trunk of the arm. In case of arterial bleeding from wounds of the lower extremity, it is most certainly and easily arrested by pressure on the large artery of the thigh, at the point in or just below the groin. In all

these cases, pressure may be exerted by means of the thumb, or by some convenient body, such as the key above named. To compress arteries in the limbs, surgeons use the tourniquet, specially adapted for the purpose; but as a temporary substitute, a handkerchief will answer well, tolerably firmly tied round the member, between the body and the wound; if any one has knowledge enough to place a pad—a rolled-up stocking will do—over the course of the main vessel, so much the better.

Arteries are liable to the disease of aneurism, in which one or more of the coats become distended at some particular point, into a sac or pouch filled with blood. The progress of the disease is for this sac to grow larger, whilst its coverings become thinner and thinner, until at last they give way, and the individual dies from loss of blood. In many cases, surgical interference can save life by arresting the disease, and the sooner this is done the better. Aneurism may be suspected, when a tumor is felt, which distinctly pulsates, conveys to the finger a thrilling sensation, and becomes smaller and less tense when the current of blood through the artery leading to it is interrupted. In such a case the surgeon should at once be consulted. It is not, however, every tumor which pulsates that is aneurism, for proximity to a large artery may give the appearance of its doing so. (See ANATOMY, CIRCULATION OF THE BLOOD, ARTERIAL HEMORRHAGE, ANEURISM.)

ARTHRITIS. (See GOUT.)

ARTHRODIC, *ar-throd'-ik* [Gr. *arthrosis*, articulation], in Anatomy, a term applied to a connection of bones, in which the head of one fits into a hollow cavity in another; by which means motion in nearly every direction is admitted of; as, for example, in the joint between the humerus and the scapula.

ARTICULAR, *ar-tik'-u-lar*, belonging to a joint; as, articular cartilages, articular arteries, etc.

ARTICULATION, *ar-tik-u-la'-shun*, [Lat. *articulus*, a joint]. 1. In Physiology, the formation of distinct syllables by the organs of speech. 2. In Anatomy, the natural connection of one bone with another in the skeleton.

ARTICULATION, FALSE. False joint. Where a fractured bone remains ununited, a false joint is produced. Operations have been performed to cause reunion, even after years; they consist in cutting to the bones, destroying the articular surfaces, and establishing a union through the resulting inflammation.

ARTIFICIAL EYE, *ar-te-fish'-al*. It is made of enamel, beautifully colored, and is a shell of less than a hemisphere. It is applied under the eyelids, over the diseased ball. At first it produces consider-

able irritation, and cannot be worn more than a few hours; but, as the part hardens, it becomes easy, and the patient is capable of imparting a slight motion to the shell.

ARTIFICIAL LIMBS are ingenious mechanical contrivances for supplying substitutes for those limbs, or other organs of the body which accident or misfortune has removed, such as hands, arms, or legs. The skill of the dentist, or the unerring nicety of calculation required by the operator who fixes in an artificial eye, is rather a surgical operation than an anatomical contrivance; but by artificial limbs is generally meant those combinations of steel framework, screws, springs, cork, leather, caoutchouc, and gutta-percha, which imitate the form, and, to some extent, the motion and practical utility of the real limb. This is an art which has now been brought to a high degree of perfection; and artificial limbs are constructed by which, naturally and with ease, many of the movements of natural limbs are effected.

ARTIFICIAL SEA WATER FOR BATHS. (See BATHS AND BATHING.)

ARTIFICIAL TEETH. (See TEETH.)

ARTIZANS AND THEIR DISEASES, *a ünz.* The diseases to which workmen are liable in consequence of the nature of, or materials employed in, their respective businesses, always a subject of great interest, is too extensive to admit of being otherwise than very briefly entered into in the present work. Legislation and invention have of late years done much to screen the various classes of artizans from many sources of injury to health to which they were formerly exposed; much more remains to be done, and would perhaps be done more quickly, were it not for the apathy, and sometimes even contradiction, of those who were chiefly to be benefited. It is useless to supply miners with Davy lamps, and fork-grinders with magnetic respirators, when the means of safety are so constantly and carelessly neglected. One immense source of evil—now happily ameliorated—has been exertion too prolonged, especially in the young; nutriment which should have gone to build up the growing frame, is consumed in mere physical exertion, the powers of the brain are used up in the same, and if not deformity of body, at least great weakness, and with it mental inaptitude, are the consequences. Many of those who are liable to disease in consequence of the materials they work in, owe much to their own want of cleanliness; this is the case with regard to the metals, especially lead, and a striking improvement has taken place in the health of workmen who have been compelled to observe certain rules of cleanliness, such as washing the hands before their meals. Workers in quicksilver are liable, in addition to affections of the teeth and gums, to a species of shaking palsy, or

tremor of the limbs. Modellers in colored wax, makers of wax-flowers, etc., are in danger of suffering injury from absorption through the skin of the hand, of the poisonous coloring ingredients, and should be extremely careful. Workers in lead, such as plumbers, type-founders or painters who use it in the form of white or carbonate of lead, are apt to suffer from paralysis, more particularly of the muscles of the forearm; their more usual disease, however, is the "painter's colic," or dry belly-ache (see COLIC.) Copper-smiths, smelters, lucifer-match makers, all have their peculiar affections, that of the latter being a disease of the jaw-bone. Those who are employed in the filing or dry grinding substances which give off a hard dust, are peculiarly liable to chest disease, from the mechanical irritation caused by the particles continually inhaled. So much is this the case in some trades—such as the Sheffield fork-grinders—that most, if not all, their members die before reaching the age of forty. Millers, and those employed among the dust of a softer quality, are not so likely to become consumptive as the former class, but have more tendency to asthma; they also suffer from the consequences of the cutaneous pores and functions being clogged and hindered by the dust. Grocers and bakers who are in the habit of handling flour, sugar, etc., suffer frequently from a disagreeable skin disease affecting the fingers, well-known by the name of "grocers'-itch." Housemaids who kneel at work have their peculiar swelling, which forms, and sometimes suppurates over the knee-cap; this may be prevented by kneeling on a soft substance. Clergymen, actors and public speakers have their peculiar throat affection; in short, there is scarcely a trade or profession which does not expose its follower to some peculiar ailment, but there is scarcely one of these ailments which may not be prevented or much ameliorated by proper care—by cleanliness more especially, but also by attention to the various other prophylactic means which are now so generally known and provided. (See COLIC, CONSUMPTION, LEAD, SKIN, AIR, VENTILATION, ABLUTION, DIET, HEALTH, ETC.)

ARUM, *a'-rum*, in Botany, the typical genus of Nat. order *Araceæ*. The only British species is *A. maculatum*, the common cuckoo-pint, wake-robin, or lords-and-ladies, and probably the long purples of Shakespeare. This curious perennial is found growing in shady places, hedge-banks, rough grounds, and groves. The flowers, which come to perfection in April and May, are monœscious; that is, the sexes are contained in different flowers on the same plant. They are arranged on a succulent axis, terminating in a club-shaped receptacle termed a spadix, of a purple or yellowish-white color, and enclosed in a membranous sheath denominated a spathe. The berries are of a fine scarlet color, and help to adorn hedges in autumn. They are very poisonous, and the whole

plant contains acrid and poisonous juices. The tubers, which are filled with starch, are dried, powdered, and used in France as a cosmetic, under the name of cypress powder. The starch, separated from acrid juices, forms Portland arrowroot, which was formerly prepared in large quantities in the island of Portland, where the plant grows in great profusion. In the fresh state, the tubers are stimulant, diaphoretic, and expectorant, and were formerly used in the form of an emulsion in obstinate rheumatism.

The *A. Tryphyllum*, wild turnip or dragon root, a native of all parts of the American continent, is acrid, expectorant, and diaphoretic. It has been advantageously given in asthma, whooping-cough, chronic catarrh, chronic rheumatism, flatulence, croup, stomatitis, chronic laryngitis, bronchitis, low stages of typhus fever, and various diseases connected with a cachectic state of the system. Dose: fluid extract, 10 to 20 drops; infusion, 1 to 2 fluid ounces. (See INFUSION.)

ASAGRÆA, *as-a-gre'-a*, in Botany, a genus of plants belonging to the Nat. order *Melanthaceæ* or *Colchicaceæ*. The most important species is *A. officinalis*, a native of Mexico, and the principal, if not the only source of the *Sabadilla*, *Cevadilla*, or *Cebadilla* of the shops, which consists of the fruits and seeds. The seeds are officinal, and yield the alkaloid veratria, which has been used externally as a rubefacient in rheumatism, gout, and neuralgic affections, and also internally in similar cases, in doses of one-twelfth to one-sixth of a grain. It is a most powerful poison. *Sabadilla* seeds have been employed as an anthelmintic. They are called *lice-seeds* by the Germans; because, when powdered and employed externally, they destroy vermin.

ASARUM, *as-'a-rum* [Gr. *a*, not, *saron*, feminine], in Botany, a genus of plants belonging to the Nat. order *Aristolochiaceæ*. The species *A. Europæum*, a native of Europe, is a rare plant in the woods of Britain. The root which forms the drug asarabacca contains a camphor-like principle, and a bitter principle called *asarin*, which is combined with gallic acid. It is sometimes called hazelwort or wild nard. It is emetic, cathartic, and errhine. Used principally as an errhine in affections of the brain, eyes, face, and throat, toothache, ophthalmia, and paralysis of the mouth and tongue. Internally it is a stimulant in doses of 10 or 12 grains of the dried leaves, and an emetic in $\frac{1}{2}$ dram doses. It is said to be used in France by drunkards to promote vomiting.

A. Canadense, or wild ginger, is a spicy stimulating agent, producing perspiration, promoting expectoration, and having carminative properties. It is used in colic and other painful affections of the bowels and stomach, where no inflammation exists, and in chronic pulmonary affections. It is also used as an errhine. Dose of the powder, $\frac{1}{2}$ dram; tinc-

ture, $\frac{1}{2}$ to 2 teaspoonfuls; fluid extract, 20 to 40 drops, three times a day.

ASCARIDES, *as-kar'-e-deez* [Gr. *askarizo*, I jump], parasite worms which inhabit the intestines of animals. They belong to the genus *Entozoa*, and are ranked in the order of *Numatoidea*. One of the commonest species, the *A. lumbricoides*, which is very like the common earthworm, is found frequently in the intestines of men, and of horses, oxen, etc. They have been observed fifteen inches in length, and they are often the cause of severe disease, which has sometimes proved fatal. The *A. vermicularis*, or threadworm, is very common among young children. It is white, about half an inch long, and infests the lower part of the intestines in great numbers. (See WORMS.)

ASCITES, *as-si'-teez* [Gr. *askites*, from *askos*, a bottle], a term used to denote abdominal dropsy, or dropsy in the belly. (See DROPSY.)

ASCLEPIAS, *as-kle'-pe-as* [Gr. name of *Æsculapius*, the god of medicine], in Botany, a genus of plants, the type of the Nat. order *Asclepiadaceæ*. The common English name for the genus is swallow-wort. The species are mostly American, and many of them possess powerful medicinal qualities, as one might expect from the generic name. *A. curassavica*, the bastard ipecacuanha, is a native of the West Indian islands, where the root is employed by the negroes as an emetic, and is occasionally sent to this country as ipecacuanha. *A. Cornuti*, or common silk-weed, and known as milk-weed in many parts of the country, is tonic, diuretic, alterative, emmenagogue, purgative, and emetic, and given in large doses is stimulant and anthelmintic. It is said to be useful in amenorrhœa, dropsy, retention of urine, asthma, dyspepsia, cough, constipation, worms, scrofulous and rheumatic disorders. The action of the heart is augmented under its use. It may be taken in syrup or ginger, to cover its unpleasant taste. Dose: of fluid extract, 10 to 30 drops; tincture, 10 to 60 drops; decoction, 2 to 4 fluid ounces, three or four times a day; powder, 10 to 20 grains. (See DECOCTION.)

A. Incarnata, commonly called white Indian hemp, possesses alterative, diaphoretic, and diuretic properties. Dr. Wm. Hauser, of Georgia, has used it with the happiest results in many forms of fever, but regards it especially as equal to anything now known in the treatment of gonorrhœa and syphilis. He has used it with little regard to the stage of the disease, and with the best success. Prof. Tully recommends it in catarrh, asthma, syphilis, rheumatism, and worms. Reputed by many to be emetic and cathartic. Dr. King regards it as possessing anthelmintic properties, and as useful in chronic mucous diseases of the stomach. Dose: fluid extract, 20 to 40 drops; solid, 3 to 5 grains;

tincture, 10 to 60 drops; decoction, 2 to 4 fluid ounces, three times a day. (See DECOCTION.)

A. Tuberosa, known as pleurisy root, is diaphoretic, expectorant, carminative, diuretic, tonic, and antispasmodic. Used in pleurisy, pneumonia, catarrh, febrile diseases, acute rheumatism and dysentery. Useful in indigestion, and in all cases of flatus in adults and children. It is said that a number of cases of prolapsus uteri have been cured under the use of 1 ounce of pleurisy root mixed with $\frac{1}{2}$ an ounce of the root of *aletris farinosa*, and given in dram or teaspoonful doses, three times a day. It is said to have been prescribed with favorable effect in catarrh, bronchitis and other pulmonary complaints, where it was necessary to determine to the skin, and at the same time promote free expectoration. Dr. Parker, of Massachusetts, employed it with great success for twenty years, in dysentery. A pill composed of equal parts of *asclepidin* and *dioscorein*, will be found very beneficial in flatulency, and where persons are subject to flatulent or bilious colic. Dose: fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; asclepidin, 1 to 5 grains; infusion, 1 to 4 fluid ounces; tincture, 1 to 2 teaspoonfuls three times a day. (See INFUSION.)

ASIATIC CHOLERA. (See CHOLERA.)

ASPARAGUS, *as-par'-a-gus* [probably from Gr. *sparasso*, I tear], in Botany, a genus of plants belonging to the Nat. order *Liliaceæ*, the lily family. The species are herbaceous, or shrubby plants, growing wild in the southern parts of Europe and in Africa. *A. officinalis*, the common asparagus, has long been cultivated for the sake of the young succulent shoots called *turios*, which form a much-esteemed article of food. In the wild state the shoots are slender and tough, but by cultivation they are obtained thick and extremely tender. The ancient Romans were well acquainted with this delicate culinary vegetable, and Pliny mentions a variety which grew near Ravenna, producing shoots so large that three weighed upwards of a pound. It is now cultivated in all the temperate regions of the world, and to a very great extent near London, Paris and Vienna. In no part of Europe is it grown to such perfection as in the market-gardens round London. There are a great many local varieties of asparagus, but they may all be regarded as slight modifications of two well-marked sorts, namely, the red-topped and the green-topped. Asparagus-shoots contain a peculiar crystalline principle, to which the name *asparagin* has been given: this has a specific action on the urinary organs, and its properties have caused asparagus to be properly employed as a lithic. In Medicine, the shoots, roots, and flowering stems of *A. officinalis* are occasionally employed as diuretics. The roasted seeds have been used as a substi-

tute for coffee. Asparagus when young, well boiled, and not overloaded with melted butter, is wholesome and digestible; it gives a peculiar odor to the urine. Its peculiar vegetable principle, asparagin, contains nitrogen.

ASPERULA, *as-pe'ru-lă* (diminutive of Lat. *asper*, rough], in Botany, a genus of plants belonging to the Nat. order *Galiaceæ*, the madder family. The species *A. odocata*, the woodruff, is one of the most fragrant plants found in our woods: it contains the natural perfume to which chemists have given the name of *coumarin*. *A. cynanchica*, another indigenous species, is commonly called quinsy-wort, on account of its supposed value as a remedy in sore throat.

ASPHALTUM, *as-fal'tum* [Lat.], a smooth, hard, brittle, black or brown substance, which melts easily when heated, and if pure burns without residue. It is found in a liquid or soft state on the surface of the Dead Sea, and the island of Trinidad. It occurs also as a mineral production in various parts of Europe, Asia and America. The Egyptians used asphaltum in embalming, under the name of *mumia*. It was used by the Babylonians instead of mortar for cementing bricks. Taken internally asphaltum acts as a stimulant, but it is rarely used unless as an ingredient in some plasters and ointments.

ASPHYXIA, *as-fiks'-e-ă* [Gr. *a*, not, and *sphuxis*, pulsation], literally signifies without pulsation, and is used to denote that state of body during life in which the vital functions are suspended from some cause interrupting respiration; and hence, to speak correctly, it should be called *apnœa* [Gr. *a*, not, and *pneo*, I breathe]. In asphyxia, the action of the lungs is suspended, and the blood no longer undergoes that purifying process so necessary to life. Hence the system becomes filled with impure blood, the powers of sensation and voluntary motion are suspended, and if the proper means of restoration are not resorted to, death will speedily ensue. Asphyxia may be produced by various causes; as by whatever prevents the access of air to the lungs, as strangulation, drowning, choking, etc.; or whatever interferes with the action of the nerves that are concerned in respiration, as paralysis, cold, stroke of lightning, etc. It may also be produced by breathing an impure or a too rarefied atmosphere. (See DROWNING, HANGING, SUFFOCATION, ACCIDENTS, CHOKING, COLD, PARALYSIS, ETC.)

ASPIDIUM, *as-pid'-e-um* [Gr. *aspidion*, a little buckler], in Botany, the name of a genus of ferns. The fronds of the species *A. fragrans* possess aromatic and slightly bitter properties, and have been used as a substitute for tea. The root of the *A. Filix Mas*, or male fern, is strongly recommended as an anthelmintic. The accounts of its efficacy in the treatment of tape-worm are too numerous to admit of any reasonable

doubt on the subject. Dr. Peschier stated that in the course of nine months 150 tape-worms had been expelled by the extract. Dr. Ebers found it completely successful in eight cases. M. Ronsel never found it to fail. Its use should be followed by a purgative. Dose: fluid extract, 1 to 3 teaspoonfuls; oil, 30 to 60 drops; solid extract, 9 to 15 grains; pills, 2 grains, 4 to 7 pills; powder, 1 to 3 drams. (See WORMS.)

ASSAFÆTIDA, OR ASAFÆTIDA, *as-a-fet'-e-da* [Persian, *asa*; Lat. *fœtidus*, fetid], the name of a fetid gum-resin, used in Medicine on account of its antispasmodic and more or less stimulating properties, and extensively employed in Persia and adjacent countries as a condiment, just as garlic and other allied plants are employed in Europe. The umbelliferous plant *Narthex*, or *Ferula assafœtida*, yields the greater part of the assafœtida of commerce; but in all probability, other species of *Ferula*, and also other plants, yield the drug. Royle suggests that *Pranges pabularia* may be one of the sources. The peculiar and offensive odor of assafœtida is attributed to the presence of sulphur in combination with allyle. It is useful in hysterical cases, and in flatulent distension of the bowels; in the latter case, especially, given as a clyster: it is the most efficacious agent we possess. Two teaspoonfuls of the tincture of assafœtida may be added to a simple gruel clyster, or to one of the purgative clysters, if requisite. In nervous affections, convulsions, flatulence, spasmodic asthma, worms, etc., assafœtida is frequently of great service. Dose, from 5 to 20 grains. It is commonly given in the form of tincture or pills. The tincture is formed by macerating $2\frac{1}{2}$ ounces of assafœtida in 1 pint of rectified spirit; dose, from $\frac{1}{2}$ to 1 teaspoonful. The compound pill of *A.* consists of 2 ounces each of assafœtida, galbanum, and myrrh, with 1 ounce by weight of treacle, heated and mixed well together; dose, 5 to 10 grains. The compound *A.* and aloes pill is made by taking 1 ounce each of socotrine aloes in powder, assafœtida, hard soap in powder, and confection of roses, beat together till thoroughly mixed; dose, 5 to 10 grains. It is also used in the form of enema. (See CLYSTER-ENEMA.)

ASSES' MILK, *ass'-ez*, is, on account of its nutritious qualities and lightness of digestion, frequently recommended to consumptive patients and delicate young children. It contains more sugar and less cheesy matter than other milk. It bears a considerable resemblance to human milk, and hence is considered best for a child when the other is not available. It is a most excellent dietetic article, and restorative in all cases of debility. Drank too freely it acts upon the bowels.

ASSIMILATION, *as-sim-e-la'-shun* [Lat. *adsimilatio*, from *ad*, to, and *similis*, like], the act of organized bodies, by which they convert foreign substances into their own proper substance, by which food is

converted into nutriment. (See CHYLE, CHYME, DIGESTION, NUTRITION, ETC.)

ASTER PUNICEUS, *as'-tur*, red-stalked aster. This plant, belonging to the Nat. order *Asteraceæ*, grows in swamps and ditches, and along the borders of streams all over the United States and Canada. The fibres of the roots are the part used. It is sometimes known by the name of squaw-weed. It is stimulant and diaphoretic, and, in the shape of infusion, is used in colds, rheumatism, nervous debility, headache, and menstrual irregularities. The *Aster Æstivas*, called also rheumatic weed, resembles the above, and is used for the same purposes. It is said also to possess some virtues as an antidote in the bites of venomous snakes. It is given in doses of 1 to 4 fluid ounces of the infusion. (See INFUSION.)

ASTHENIA, *as-the-ni'-a* [Gr. *a*, not, and *sthenos*, strength], denotes debility or loss of strength, and is employed in connection with diseases of which this is a characteristic.

ASTHMA, *ast'-ma* [Gr. *asthmazo*, I breathe with difficulty]. This disease consists of paroxysms of difficult respiration coming on at uncertain intervals, usually during the night, accompanied by wheezing respiration, and terminating in copious mucous expectoration. Previously to the occurrence of the paroxysms the patient has warning of what is about to happen from the state of his digestive organs; he begins to lose his appetite, and to suffer from lassitude, weariness, drowsiness, oppression, flatulence, and belching, and he retires to rest with a general feeling of illness. After passing several long and uncomfortable hours, perhaps dozing at intervals, he wakes up about two or three o'clock in the morning with a sense of tightness and constriction in the chest. He sits up, and leaning forward, places his elbows upon his knee; he labors to get his breath, and feeling the absolute necessity of pure air, rushes to the window, which he quickly opens. His extremities are cold, but his body is bathed in perspiration; the face is flushed and turgid, the pulse feeble and irregular. A large quantity of pale limpid urine, like that secreted during the hysterical paroxysm, is passed before and during the fit. This state lasts for an uncertain period, there may be slight remissions, but at last he expectorates a large quantity of mucus, and the asthmatical paroxysm is at an end. During the intervals he enjoys a fair share of health, but is always short-winded.

The air-tubes of the lungs are surrounded by muscular fibres resembling those encircling the bowels, and this disease is essentially due to the abnormal contraction of this tissue, and the consequent narrowing of the passages through which the air has to pass. These fibres surrounding the bronchial tubes have been proved to be muscular by the aid of

the microscope, which shows that their intimate structure corresponds with that of organic, or involuntary muscles in various other parts of the body; again, they have been made to contract like muscular fibres under the influence of galvanism, and to materially shorten themselves by the application of this force to the nerve, or nerves, supplying them.

That this disease is of a spasmodic nature may be inferred from the consideration of the following facts: That spasm co-exists in other parts of the body in some cases, that asthmatical patients describe the feeling as that of spasm; again, the way in which the paroxysm comes on, and the capricious manner in which it goes off, both point to spasm as its source, and, finally, the disease is much alleviated and shortened by antispasmodic medicines.

Causes.—Asthma is hereditary, being transmitted from father to son, and grandson. It may be due to alterations in the lungs themselves, and to diseased states of the heart and large blood-vessels. It is most common in men, and in the middle period of life. Particular states of the atmosphere may excite a fit of asthma, and other causes may bring it on which are of too subtle a nature for our appreciation; thus many instances are known in which asthmatical patients could never sleep in a certain room of a house without an attack, while he could pass an uninterrupted night's rest in any other sleeping apartment of the same house; or a person is able to sleep in a house on one side of the street, but not in one on the other side. Some individuals cannot breathe an atmosphere containing finely divided particles of ipecacuanha without suffering severely from attacks of cough and difficulty of breathing resembling closely the asthmatical paroxysm as above described.

Treatment during the paroxysm.—If the stomach be full, as is almost always the case, an emetic should be promptly administered. 10 grains of ipecac, stirred up in half a tumbler of warm water, or a teaspoonful of mustard in a tumbler of warm water, will answer the purpose. The bowels should be emptied by an enema of soap and water. A hot foot-bath and mustard to the chest, are also indicated. A cup of hot, strong coffee frequently exerts a beneficial influence. Nitre-paper fumes is an old remedy still very much in use. The papers are prepared in the following way: Dissolve in water all the saltpetre it will take up. In this saturated solution dip sheets of ordinary red blotting paper. Roll in the shape of cigars or cones, and when dry, set fire to them, holding them in such a way that the fumes may be inhaled by the distressed patient. Stramonium, commonly called thorn-apple, and in some parts of the country, jimson-weed, is another favorite remedy. Smoking the leaves is said to give very great relief, indeed, in many cases it acts like magic. The *datura tatula*, a species of sea-

weed, may be smoked in the same way. Inhaling the fumes of chloroform gives relief, but it is not a safe remedy out of the hands of a physician. Ether is much safer, and just as effectual; a teaspoonful may be placed on a handkerchief and inhaled. Lobelia is another remedy in high repute; 20 or 30 drops of the tincture may be given every half hour, until relief comes, or until nausea or vomiting is produced. Hoffman's anodyne, in doses of 30 drops, may be beneficially combined with the lobelia. Indian hemp, in doses of from 2 to 4 grains of the extract, will frequently relieve the spasm. Opium, combined with sulphuric ether, may be given with good effect as follows:

Take of Laudanum	One teaspoonful.
Compound spirits of ether	Two teaspoonfuls.
Camphor water	Six ounces.— <i>Mix.</i>

Give two tablespoonfuls every two or three hours.

Preventive treatment.—The bowels should be kept gently open, the food be light and nourishing, sudden changes of temperature to be avoided, regular and moderate exercise to be taken, and a change of climate or situation to be tried. The best atmosphere on the continent for asthmatic patients, is that of Colorado. This class of patients also derive great benefit and relief by an abode in Minnesota. Alcoholic stimulants must be scrupulously shunned, as they only add fuel to the flame. Iodide of potassium, in doses of 5 grains, three times a day, is a remedy which has recently been very highly extolled for its preventive properties in this disease. The extract of hemlock, either alone, in doses of 1 to 2 grains, three or four times a day, or in combination with the Indian hemp, in $\frac{1}{4}$ or $\frac{1}{2}$ grain doses, is also highly recommended. Sleep is to be procured at night by 6 to 10 grain doses of Dover's powder, or 25 to 40 drops of laudanum. (See CLIMATE, HEALTH RESORTS, DATURA, GRINDELIA ROBUSTA, SPASM.)

ASTRAGALUS, *as-trag'-a-lus* [Gr. *astragalos*, a die], is the ankle-bone or first bone of the foot, upon which the tibia moves. It is so called from being shaped like the die used by the ancients in their games. In Botany, a genus of plants belonging to the Nat. order *Leguminosæ*, suborder *Papilionaceæ*. More than 250 species have been described, and most of them are hardy plants, either shrubby or herbaceous. The best known species are *A. hypoglottis*, the purple milk-vetch, and *A. glycyphyllos*, the liquorice-vetch. The species *A. verus*, *A. gummifer*, *A. creticus*, and some others, furnish gum-tragacanth, or, as it is frequently termed, gum-dragon. Tragacanth exudes naturally from all parts of the above plants, or from wounds made in the stems. It is used by manufacturers for stiffening crape and other light fabrics, and by perfumers for making bandoline. In Medicine

it is employed for its demulcent and emollient properties, and as a vehicle for the exhibition of more active substances.

ASTRINGENTS, *as-trin'-jentz* [Lat. *ad*, to, and *stringo*, I tie fast], substances which have the property of contracting or drawing together the muscular fibre or coagulating albuminous fluids. They are employed medicinally for the purpose of obviating relaxation of the fibres and tissues, to check excessive secretions, and to impart tone to the system, and hence are useful in checking fluxes, hemorrhage, and diarrhœa. In cases of relaxation or debility, either external or internal, in increased and injurious secretions from glands or mucous surfaces, astringents are the chief remedy. The amount of astringent action, however, depends greatly upon the mode and circumstances of its application. The astringent principle in the vegetable kingdom, in the form either of tannic or of gallic acid, is very widely diffused. The principal vegetable astringents used in medicine are: Oak-bark, galls, kino, catechu, tormentilla, uva-ursi or bear-berry, logwood, etc. The mineral astringents are the acids, alum, salts of iron, particularly the muriate, sulphates of copper and zinc, and nitrate and oxide of silver, and salts of lead. Cold in any form is astringent.

ASYLUM, *a-si'-lum* [Gr. *a*. not, and *sulao*, I rob], was formerly used to denote a sanctuary or place of refuge to which criminals might fly for safety, and from which it was considered the greatest impiety to take them by force. The term is now commonly applied to certain institutions whose object is to alleviate the condition of the blind, deaf and dumb, lunatic and destitute.

ASYLUMS, LUNATIC. (See **INSANE ASYLUMS.**)

ATAXIA, *a-taks'-e-a* [Gr. *a*, not, *taxis*, order], want of regularity. Applied to a course or symptoms of disease, or to the functions of the animal body. It has been most generally used by late writers to denote that state of the nervous system which accompanies nervous fever.

ATAXO-ADYNAMIC, *a-taks'-o a-di-nam'-ik*, a term applied by the French to typhus fever.

ATHEROSPERMUM MOSCHATUM, *ath'-e-ro-sper-mum mos-ka'-tum*, a medicine introduced as a remedy in chronic bronchitis, and apparently with some success. Dose of the tincture, a teaspoonful in water every three, four, or six hours, according to circumstances. It is well worthy of a trial in chronic cases which have resisted other methods of treatment, and the writer can speak favorably of its effects from a pretty extensive experience of its use in such cases. If it causes sickness, the dose should be somewhat diminished, and it should not be given so frequently.

ATLANTIC STATES, CLIMATE OF. (See CLIMATE.)

ATLAS, *at'-las*, in Anatomy, is the name of the first vertebra, so called either from the Greek verb *atlao*, I sustain, or from Atlas, who was fabled to support the world upon his shoulders. It differs from the other vertebræ in having its body small and thin, and its forearm very large, being in form somewhat like a ring. It is connected above with the condyles of the occipital bone, and receives the tooth-like process of the second cervical vertebra from below, the former admitting of moving the head up and down.

ATMOSPHERE. (See AIR.)

ATOM, *at'-um* [Gr. *a*, not, and *temno*, to cut]. Synonymous with equivalent. The smallest or ultimate particles of which material bodies are composed, are termed atoms. Larger portions of matter are composed of these, and between them the actions of attraction and repulsion, whereby the condition of bodies is changed, may be supposed to take place.

ATOMIZER, *at'-um-i-zur*, an instrument for the atomization of medicines. There are various modifications of these useful instruments, one of the best being that manufactured by Codman & Shurtleff, of Boston. By its use any medicated liquid may be converted into the finest spray, and in this state may be inhaled into the smallest air-cells. The diseases which have been treated more or less successfully by inhalation of atomized, medicated fluids, are chiefly those of the pharynx, larynx, trachea, bronchia and lungs; croup, diphtheria and whooping-cough have also been successfully treated in this way. Simple bronchial catarrh often improves rapidly treated in this way, while bleeding from the lungs has been many times promptly arrested.

ATONY, *at'-o-ne* [Gr. *a*, not, and *tonos*, tone], is a term used in Medicine to denote deficiency in power or tone, generally applied to muscular power.

ATRESIA, *a-tre'-ze-a* [Gr. *a*, not, *tras*, to perforate], imperforation. Absence of the natural opening of any canal or cavity, owing to congenital malformation or occlusion of the same from disease or injury.

ATROPA BELLADONNA, *at'-ro-pa bel-la-don'-na*, belonging to the Nat. order *Atropaceæ*. This plant is commonly known as the dwale, or deadly nightshade. It is a native of Greece and Italy, and also indigenous to Britain, but not common. It is perennial, and grows in hedges and waste grounds on a calcareous soil, but is only met with in a comparatively few localities. It blossoms from June to August, the flowers being about an inch long, drooping, bell-shaped, and of a lurid purple color. The fruit is a berry of a shining violet black color when ripe, about the size of a small cherry. The berries have a most tempt-

ing appearance, and children have frequently been poisoned by them. They are powerfully narcotic; and one of the first symptoms of their deadly action on the human frame is an appearance of the most besotted drunkenness. The dried leaves or an infusion of the leaves, will act in a similar manner. Even a small dose causes an extravagant delirium, which is usually of an agreeable character. The delirium is sometimes accompanied by excessive and uncontrollable laughter, sometimes by excessive talking, but occasionally by a complete loss of voice. The state of mind sometimes resembles somnambulism, as in the case of a tailor, who for fifteen hours, was speechless and insensible to external objects, and yet went through all the operations of his trade with great vivacity, and moved his lips as if in conversation. Dryness of the mouth and throat, difficulty of swallowing, nausea, dimness of vision, giddiness, coma, are among the other effects of this poison, and death is usually preceded by convulsions and paralysis. The best antidote to the virulent effects of this poison is *vinegar*, when promptly administered; but, if practicable, the stomach-pump should be at once used. When death ensues from its effects, the body soon putrefies, and swells in a remarkable manner, being covered with livid spots, and blood sometimes exudes from the mouth, nose and eyes. It is to be feared that it is a common ingredient in specifics for sparkling eyes sold by perfumers. The active principle of the plant is the alkaloid *atropia*.

Therapeutic Properties of Belladonna.—Conclusions of M. Dubois:

1. That belladonna is not without efficacy in inflammations, especially in those of the globe of the eye.
2. That it is the best remedy known in the intolerance of light which so frequently accompanies inflammation of the eye.
3. That its power as a preventive in scarlatina or scarlet fever can hardly be contested.
4. That it sometimes cures certain hemorrhages, particularly from the lungs, stomach and womb.
5. That it is a remedy *par excellence* for neuralgia, for whooping-cough, and most of the nervous diseases.
6. That it is a remedy *par excellence* to combat pain, especially when external.
7. That it alleviates, more than any other remedy, the pains of cancer, and cures sometimes, if not cancer, diseases closely resembling it.
8. That it can be advantageously employed in spasmodic contraction and occlusion of the pupil; to produce prolapse of the iris, and to break up adhesions; to prevent the inflammation of the iris so frequent after this operation; to maintain dilatation of the pupil, and to diminish the chances of adhesions after the operation of couching; to prevent secondary cataract; to re-establish vision, temporarily at least, when the lens is opaque in the center, or when there are opacities of the cornea; to assist the diagnosis in some diseases of the eye.
9. That it is of real efficacy in some cases of strangulated rupture.

10. That its property of facilitating labor in spasmodic constriction of the uterine neck is powerful and incontestible. 11. That it produces advantageous results in some cases of fissure of the anus. 12. That its employment may be more or less useful in spasmodic constriction of the bowels, in constipation, in spasmodic contraction of the rectum, of the anus, and of the vulva; in spasmodic stricture of the urethra, retention of urine, strangury, spasmodic stricture of the larynx and œsophagus; in spasm of the eyelid, incontinence of urine, nephritis, colic, piles, etc.

Antidotes.—The remedies recommended are, stomach-pump, vinegar, iodine, emetics, purgatives, cold application to the head; in the comatose stages, ammonia internally, with external stimulants.

Dose: fluid extract of belladonna, 3 to 10 drops; solid extract, $\frac{1}{4}$ to 1 grain; tincture, 5 to 30 drops. (See ATROPIA.)

ATROPHY, *at'-ro-fe* [Gr. *a*, not, and *trophe* nourishment], denotes a wasting, from deficient nutriment, either of a part or of the whole of the body. In order to the maintenance of the healthy state of the body or of any of its organs, a certain supply of nutrition is required to meet the waste that is constantly going on. When, from any cause, the supply of nutrition is not able to meet this waste, the natural dimensions of those parts are reduced. In a healthy condition of body, an exact balance is maintained between the waste and the supply; but in a very morbid condition, this balance is more or less disturbed, in consequence of which the whole body, or certain parts of it, receive too little or too much nourishment. The first state, from whatever cause it arises, is termed *atrophy*, the latter *hypertrophy*. Atrophy may thus arise from a vast variety of causes. It may be occasioned by merely withholding the necessary supply of nutritious food, without any actual disease. Among the diseases capable of producing atrophy, the most common are those of the digestive organs, by which the aliment is taken up and prepared for assimilation. Disease of the organs of assimilation may produce atrophy as affectually as disease in the primary organs of digestion. A frequent instance of this is in consumption, when the lungs become so diseased as not to be able to take in a sufficient quantity of air. Atrophy may result also from a want of activity in an organ, or in the whole body; so that when the nutritive particles are conveyed to them in the blood, they have not power to appropriate a sufficient quantity of them. When the vital activity of an organ is small, the nutritive particles are taken up slowly and languidly; while the affinity existing between them being also weak, they are sooner removed by the process of absorption than in health, and the parts thus circumstanced are rapidly wasted. Hence a due supply of nervous stimulus is necessary to

the vital activity of an organ; while the cessation of action in any organ is invariably followed by atrophy. The first change that takes place in an atrophied organ, from whatever cause, is diminution of the quantity of blood sent to it; and next to this, and chiefly owing to it, is greater paleness of color. Subsequently, the organization becomes more completely changed; so that frequently all traces of its original conformation are lost, and in some cases, it at last disappears altogether. In all cases, atrophy arises from the diminution or perversion of the vital energies, generally the former; and hence, by exciting the natural vital energies of an organ, we tend to remove atrophy. In order to its cure, it is necessary to discover in what organ or organs the deficiency or perversion exists, and to adopt the mode of treatment that is considered most adapted thereto. Beyond this, nourishing diet, fresh air, healthful exercise, and, if suitable, cold bathing, are among the means generally adapted to such cases.

Atrophy or wasting may be either general or local. General atrophy is in one sense natural to advanced life, when the powers of nutrition being diminished, the muscles, the brain, the organs generally, shrink. There may be fat, at the same time much atrophy of the other bodily components. Atrophy occurring earlier in life, without *obvious* cause, ought to be regarded suspiciously. When an individual, without departing from ordinary habits, begins to lose flesh, the cause ought to be looked for, and if the change continue, the person should be submitted to a thorough medical examination, and the existence or not of incipient disease, if possible, ascertained. In young children atrophy occurs as a consequence of faulty digestion, most frequently from improper feeding; it also is the result of a diseased condition of the glands of the belly, through which the nutrient portion of the food passes on its way to the general circulation. For this condition, cod-liver oil is *the* remedy, given in teaspoonful doses twice a day, to an infant of six or eight months old, and the same quantity well rubbed into the skin of the abdomen night and morning. Some medicines, such as iodine, have the power of causing local or even general atrophy.

Local atrophy is liable to occur from various causes. Whatever diminishes the supply of blood to a part, will cause it to waste. Pressure on the main artery of the limb, obliteration of the smaller vessels of a part by previous inflammation, disuse of a member from paralysis or any other cause are all followed by diminution in size of the part affected. (See DIET, FOOD, DIGESTION, DYSPEPSIA, CONSUMPTION, AIR, VENTILATION, EXERCISE; AGE, OLD; CHILD, EMACIATION, COD-LIVER OIL, HEALTH, BATHS.)

ATROPIA, OR ATROPINE, *a-tro'-pe-a*, an alkaloid obtained by

Brand in 1819 from the root of the *atropa belladonna*. It is similar in its properties and actions to belladonna, but is much more powerful. The dose is from $\frac{1}{15}$ to $\frac{1}{60}$ of a grain, but it is rarely used internally. In neuralgia and neuralgic pains, the ointment, made by mixing 10 grains of atropine with $\frac{1}{2}$ an ounce of lard, has been found very beneficial. A piece the size of a pea should be applied thrice daily. Cases of sciatica have been cured by injecting $\frac{1}{30}$ of a grain under the skin with the hypodermic syringe. It is a very powerful remedy, and should never be used except by direction of a physician. (See *ATROPA BELLADONNA*, *ALKALOIDS*.)

ATTITUDE, *at'-te-tude*, the different positions which the body is capable of assuming by the action of its muscles, are called attitudes. The attitude of the body in disease, often affords important indications. (See *POSITION*.)

AUDITORY, *aw'-de-tur-e* [from the Lat. *audio*, to hear], in Anatomy, is a term applied to certain parts of the organ of hearing; as the auditory nerve, meatus auditorius, etc. (See *EAR*.)

AURA EPILEPTICA, *aw'-ra ep-il-ep'-te-ka*, a sensation which is sometimes felt immediately before a fit of epilepsy. The patient feels as if a stream of cold air were ascending from some distant part of the body toward the head. A similar phenomena is alleged sometimes to occur in hysteria, in which it is called aura hysterica. (See *EPILEPSY*, *HYSTERIA*.)

AURANTII CORTEX, *aw'-ran-ti kor'-teks*. Aurantii cortex, or orange peel, is a mild tonic, carminative and stomachic, but is seldom used alone. It is employed to flavor other medicines, to correct their nauseating tendencies, and to assist their stimulant impression on the stomach. It is a very useful addition to bitter infusions, tinctures or decoctions. Dose, fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls. (See *ORANGE*.)

AURICLES, *aw'-re-klz*, the name given to two of the cavities of the heart. (See *HEART*.)

AURIST, *aw'-rist* [Lat. *auris*, the ear], is a term applied to one who studies and professes to cure diseases of the ear.

AURUM, *aw'-rum*, Latin for gold. (See *GOLD*.)

AUSCULTATION, *aws-kul-ta'-shun* [Lat. *auscultare*, to listen], in Medicine, is a term applied to the method of ascertaining the healthy or diseased state of certain organs, by attending to the sounds which they produce, either on being struck, or in the natural performance of their functions. In a stricter sense, the term auscultation is confined to the latter of these cases, the former being termed percussion. Auscultation, then, is the art of distinguishing diseases by listening to internal sounds; and is either immediate or direct, by the unassisted ear, or mediate, by

means of instruments. This is one of the most important discoveries of modern medical science; for, though Hippocrates gives directions how, by auscultation, fluids are to be detected in the thorax, yet the subject seems to have attracted no attention for many centuries. In 1761, Leopold Avenbrugger, a physician of Vienna, published a small volume in Latin, entitled, *Inventum novum ex percussione thoracis humani, ut signo, obstruosos interni pectoris morbos detegendi*. The work, however, excited little notice till it was translated into French, in 1808, by Corvisart. Soon after this the practice of percussion became general in France and other parts, and was attended with results far more precise and certain than had been anticipated. In 1816 the subject received an immense impetus from Laennec's invention of the stethoscope. Auscultation is chiefly valuable as throwing light upon the diseases of the organs of circulation and respiration in the chest. By carefully studying the varieties of sound (often extremely slight) produced by the organs in health and disease, the skillful physician is able to judge of the condition of these organs with the greatest accuracy, and thus detect and adopt the best means of arresting incipient disease. (See STETHOSCOPE, PERCUSSION, PNEUMONIA, BRONCHITIS, CONSUMPTION; HEART, DISEASES OF THE.)

AUTOPLASTY, *aw-to-plas'-te*, autoplasmic surgery. The restoration of lost parts.

AUTOPSY, *aw'-top-se*. Inspection; personal observation; the dissection of a dead body.

AUTUMNAL COMPLAINTS, *aw-tum'-nal kom-plaints'*. To oppose autumnal complaints, and even cholera, properly so called, there seems no surer or better means than cleanliness, sobriety, and judicious ventilation. Where there is dirt, that is the place for cholera; where windows and doors are kept most jealously shut, there cholera will find easiest entrance; and people who indulge in intemperate diet during the hot days of autumn are actually courting death. To repeat it, cleanliness, sobriety, and free ventilation almost always defy the pestilence; but, in case of attack, immediate recourse should be had to a physician. The faculty say that a large number of lives have been lost, in many seasons, solely from delay in seeking medical assistance. They even assert that, taken early, the cholera is by no means a fatal disorder. The copious use of salt is recommended on very excellent authority. Other autumnal complaints there are, of which diarrhœa is the worst example. They come on with pain, flatulence, sickness, with or without vomiting, followed by loss of appetite, general lassitude, and weakness. If attended to at the first appearance, they may soon be conquered; for which purpose it is necessary to assist nature in throwing off the contents

of the bowels, which may be done by means of the following prescription :

Take of Calomel.....Three grains.
RhubarbEight grains.—*Mix.*

Take it in a little honey or jelly, and repeat the dose three times, at intervals of four or five hours. The next purpose to be answered is the defence of the lining membrane of the intestines from their acrid contents, which will be best effected by drinking copiously of linseed tea, or of a drink made by pouring boiling water on quince-seeds, which are of a very mucilaginous nature; or, what is still better, full draughts of whey. If the complaint continue after these means have been employed, some astringent or binding medicine will be required, as the subjoined :

Take of Prepared chalk.....Two drams.
Cinnamon-water.....Seven ounces.
Syrup of poppies.....One ounce.—*Mix.*

Take 3 tablespoonfuls every four hours. Should this fail to complete the cure, $\frac{1}{2}$ oz. of tincture of catechu, or of kino, may be added to it, and then it will seldom fail; or a teaspoonful of the tincture of kino alone, with a little water, every three hours, till the diarrhœa is checked. While any symptoms of derangement are present, particular attention must be paid to the diet, which should be of a soothing, lubricating, and light nature, for instance, chicken broth, which should contain but little salt. Rice, butter and bread puddings, will be generally relished, and be eaten with advantage; but the stomach is too much impaired to digest food of a more solid nature. Indeed, we should give that organ, together with the bowels, as little trouble as possible while they are so incapable of acting in their accustomed manner. Much mischief is frequently produced by the absurd practice of taking tincture of rhubarb, which is almost certain of aggravating that species of disorder which we have now treated; for it is a spirit as strong as brandy, and cannot fail of producing harm upon a surface which is rendered tender by the formation and contact of vitiated bile. Upon the first symptoms appearing, as above described—especially in cholera seasons, medical advice should be obtained at once. (See CHOLERA, DYSENTERY, DIARRHŒA, BILIOUS CHOLERA, SUMMER COMPLAINT.)

AVENA, *av-e'-na*, in Botany, the oat, a genus of grasses; Nat. order *Graminaceæ*. *A. sativa* is the botanical name for the common oat. Oats are extensively used as food for man and domestic animals. When deprived of the husks, and coarsely ground, they form oatmeal. When merely divested of their integuments, they are called groats; and these when crushed constitute embsen and prepared groats. The oat is a much hardier plant than either wheat or barley, and ripens in colder

latitudes. Oatmeal is well adapted for human food, and is usually eaten in the form of cakes or porridge. It is, however, better suited for those who have active exercise in the open air than for persons in sedentary employments, being less easily digested than the preparations of wheat. Oats are also employed for the production of alcohol. The experiments of Professor Buckman, of the Royal Agricultural College, England, show that the cultivated varieties of the oat are derived from the wild oat, *A. fatua*. This parent species attains the height of from three to five feet, and is a mischievous weed in wheat-fields. The seeds are covered with stiff bristles of a brown color, and each is furnished with a long bent awn. Professor Buckman collected some of these seeds, and in the following spring commenced the cultivation of the wild oat in the experimental plots of the Royal Agricultural College. Year by year the seeds were saved, and the interesting transformation of a weed into a productive cereal grass was traced through all its successive stages. In the first year, a lighter colored fruit was obtained; in the second, the fruit exhibited a less degree of hairiness; in the third, a greenish, straight, and slender awn took the place of the black rigid one, bent at right angles, which characterizes the wild plant; in the fourth, the fruits were much more plump, owing to the greater development of grain; in the fifth year, the ripe fruit separated from the floral envelope less readily than in the case of *A. fatua*. These changes were reported in 1855, and the professor was encouraged to continue his experiments for a few more seasons. Accordingly, in the spring of 1856, seed, the produce of the preceding year, was sown in a prepared bed, and the result was a large admixture of two forms or types of crop-oats, one with the flowers all round the stem,—the potato oat form of the farmers, and the other with the flowers all drooping to one side,—the so-called Tartarian oat. Since then Professor Buckman has grown the two sorts so derived in the field, and with a gradual improvement in point of productiveness and weight per bushel. The same acute observer has lately watched the production of wild oats as a gradual degeneration from cultivated ones. The hairy seeds of the wild oat are sometimes used by anglers instead of artificial flies. (See OATMEAL.)

AVENS ROOT. (See GEUM RIVALE.)

AVOIRDUPOIS. (See WEIGHTS AND MEASURES.)

AXIL, AXILLARY, *aks'-il ak'-zil-la-re* [Lat. *axilla*, arm-pit], in Botany, the upper angle formed by the leaf with the stem is called the axil, and everything arising at that point is said to be axillary. Buds are usually axillary. Anything springing from the stem, either above or below the axil, is extra-axillary; if above, it may be described as supra-axillary; if below, as infra-axillary.

AXILLA, *aks-il'-lq* [Lat.], is applied in Anatomy, to that cavity under the upper part of the arm called the arm-pit. Hence the term axillary is applied to the arteries, veins, glands, etc., of this part. The arm-pit is an important region of the body, on account of the large blood-vessels and nerves which occupy its space. A wound of the large artery in this situation, unless efficient means are speedily adopted to control the bleeding, must be quickly fatal. When from the copious flow of florid blood from a wound in or near the arm-pit, such an accident is supposed to have occurred, a bystander should with all speed exert pressure by means of his thumb upon the artery as it passed over the first rib, just behind the middle of the collar-bone, until the effusion of blood ceases. This pressure of course must be kept up, but as to do so with the thumb simply, would be too fatiguing, some solid body—the handle of a moderate-sized key is generally recommended—must be wrapped in a few folds of handkerchief and used for the purpose. While this is done, if medical assistance be many hours distant, as an additional safeguard, firm graduated pads should be tightly fixed into the hollow of the axilla, and firmly retained by a handkerchief or small shawl crossed over the opposite shoulder, but this must be a supplementary aid, until the artery is properly secured by the surgeon. The pressure behind the collar-bone cannot be relaxed for one moment without risk to life. (See ARTERY, ARTERIAL HEMORRHAGE.)

AXIS, *aks'-is* [Lat]. 1. This term is applied, in the general language of science, to a right line passing through, or supposed to occupy, the centre of a body. 2. The second cervical vertebra, or dentata.

AXUNGE, *aks'-unje*, Latin for hog's lard. *Æxungia*, the lard or fat of an animal; *A. anserino*, goose fat; *A. castoris*, the fluid of the oil bags of the castor fiber; *A. curata*, *A. preparata*, purified hogs lard; *A. de mumia*, marrow; *A. porcina*, hog's lard. (See LARD.)

AZORES, CLIMATE OF THE, *a-zorze'*. The climate is mild, moist, and equable.

AZOTE, *äz'-ote* [Gr. *a*, not, *zoe*, life], the old name for nitrogen. Nitrogen was so called from being destructive to life; but as numerous other gases have the same properties, the word has been almost given up by chemists, except in such words as *azotized*, *azobenzole*, etc. The French, however, still use *azote*, *azotique*, *azotate*, etc., for nitrogen, nitric acid, and nitrate.

AZYGOS, *az'-e-gos* [Gr. *a*, not, and *zagos*, a yoke], in Anatomy, is applied to certain parts of the human body that have no yoke or fellow—that, in other words, are single.

B.

BABE, CARE OF. (See CHILD.)

BACK, *bak* [Ang.-Sax.], is that portion of the human body which extends from the neck to the loins, and includes the dorsal vertebræ, the posterior portions of the ribs, and the muscles and skin pertaining thereto. Pains in the back may proceed from a variety of causes; as rheumatism, an affection of the spine, inflammation of the muscles, disease of the kidneys, or to sympathy with disorder in some distant organ—in females, in the uterus. In each case the treatment will depend upon the nature or seat of the disease. Pain in the lumbar region, or small of the back, frequently proceeds from lumbago. (See LUMBAGO, SPINE; KIDNEY, DISEASES OF THE; RHEUMATISM, SCIATICA.)

BACON, *ba'-kn* [Sax. *bacan*, to bake, or Ger. *bach*, a wild sow], salted and dried pork, made from the sides and belly of a pig. The process of curing is effected by impregnating the flesh with salt, and allowing it to remain in the brine for some time. It is then taken out, dried, and smoked. Bacon-hams are the cured hind-legs. Pork or bacon, is undoubtedly a relishing, convenient, and in some degree nutritious, addition to the general fare; at the same time, it is a question, whether it does not in many districts form too large a proportion of the ordinary nutriment consumed, and whether an advantageous exchange might not be made, in part at least, for a more farinaceous diet. Owing to the great proportion of fat in bacon, there is comparatively little of those elements of food which go to build up the constituent tissues of the animal body, and which are contained so abundantly in the grains and pulses. Where the choice lies between bacon and bread, or bread and milk, or oatmeal and milk, there is no question that much more real nourishment will be obtained from the vegetable grain and milk, which contain whatever is requisite for every portion of the frame, than from that of which simple fat forms so large a share, and which cannot do more than afford respiratory food, or at the best, add fat to the body. To full-grown men this may be of comparatively little importance, but to growing children and youths, it must of necessity be a consideration, whether, in consuming the amount of nutriment circumstances permit, they consume that which really will afford them strength and substance, or not. Bacon used as a dietetic, with breakfast, is often of much service in cases of biliary disorder. It is the fat alone, broiled, or toasted in slices before the fire, which must be eaten—the lean is hurtful, and

must be discarded by the bilious dyspeptic. When used in this way, a slight aperient action is certainly exerted, and it is to this, gently but regularly carrying off its daily proportion of bile, that the undoubted beneficial effect is most probably to be attributed. (See Food.)

BAD SMELLS. (See DISINFECTANTS.)

BAEL, OR BELA, *ba'-el*, is the name given to the dried half-ripe fruit of the *Egle Marmelos*, a native of Malabar and Coromandel. The fruit is roundish, about the size of a large orange, with a hard woody rind, and is usually imported in dried slices or fragments. This medicine has only lately been introduced into this country, and is strongly recommended as an astringent in chronic dysentery, diarrhœa, and bilious cholera. It is given in the form of liquid extract, in doses of from 1 to 2 teaspoonfuls.

BAKING. (See ROASTING.)

BAKING SODA, OR BICARBONATE OF SODA. (See SODA.)

BALDNESS, ALOPECIA, *barold'-nes*. Baldness arises from different, and often from very opposite causes. It is not confined to any period of life, for though it is far more general in old age, it is not unfrequently to be met with in youth and middle age. The chief causes which give rise to baldness are severe sickness, fevers especially, too much restriction, and too much relaxation of the skin of the head. Want of cleanliness also will cause baldness, and so will the exclusion of air from the head by the constant wearing of a hat. Constriction of the skin of the head is frequently the result of fever, or violent cold. Relaxation is the result of weakness, when a patient perspires on the most trivial exertion; relaxation of the skin takes place, the hair falls off, and frequently permanent baldness ensues. Baldness which occurs in the decline of life is, of course, the most natural, for then the bulbs of the hair have lost their vitality, and, as with plants when the roots decay, the hair withers and falls off. Baldness, especially in early life, is not necessarily permanent. Without putting our faith in nostrums which profess to make hair grow upon an old trunk, we may resort to remedies in some cases of baldness, with very great hope of success. If the scalp, when rubbed with the palm of the hand soon becomes red, it is almost certain that the baldness is not of a permanent character; while on the other hand, there is little hope of effecting any good if the color of the skin remains unaltered under friction. As remedies for baldness, any of the more stimulating hair washes may be used; but a decoction of box-wood is said to be the most successful. It is to be made as follows: Take 4 large handfuls of common box (*buxus sempervirens*), boil it in 3 pints of water in a closely covered dish for fifteen minutes, empty it into an earthenware jar, and let it stand for ten hours

or more, and then strain it and add $1\frac{1}{2}$ ounces of lavender water. Wash the bald part of the head with this lotion once or twice a day. The lotion will keep in a well-corked bottle for some time. But the most convenient, and perhaps the most reliable remedy for baldness, is pure vaseline, a highly concentrated essence of petroleum; it is quite odorless, and melts at 93° . When melted, perfume may be added, making it an elegant pomade. It is generally sold in the drug stores of this country. Before using the vaseline, or in fact any preparation, rub the scalp for some time briskly with a good hair-brush. That which may be found efficacious in one will frequently not prove so in another; but pure vaseline is probably the most effective preventative, as well as remedy. All means that tend to increase the circulation in the scalp to greater activity, will aid in the prevention as well as cure of baldness, hence, rubbing with a hard towel or hard brush, and the use of Spanish-fly ointments are recommended. Several recipes for pomatums and washes to strengthen the growth of the hair, and prevent it from falling off, will be found in the following paragraphs. Any of these may be tried, always preceding the application with brisk rubbing of the scalp with a hair-brush. The undermentioned recipes have frequently proved very beneficial:

Take of Castor oil.....	Four ounces.
Jamaica rum....	Eight ounces.
Oil of lavender.....	Thirty drops.— <i>Mix.</i>

Put these in a bottle. Shake the mixture well before using it, which should be done by daubing the part with it three times a week and leaving it to dry.

When baldness is commencing, use the following pomade:—Macerate 1 dram of powdered cantharides in 1 ounce of spirits of wine; shake it well during a fortnight, and then filter. Take 10 parts of this tincture, and rub it with 90 parts of cold lard, and a little essence of bergamot, or any other scent; rub this pomade well into the head night and morning. In ninety-nine cases out of a hundred, this application, if commenced in time and continued, will restore the hair.

Another remedy for baldness is the following:

Take of Honey (finest quality).....	Four ounces.
Sand (well washed and dried)...	Seven and a half ounces.— <i>Mix.</i>

Place the mixture in a retort, and subject it to distillation, carefully keeping the heat below the point sufficient to scorch the contents. This once much-esteemed mixture is called "Honey-water for the Hair."

The celebrated Dr. Dauvergne recommends 1 part of tar, 10 parts of lard, together with a plentiful supply of fragrant substances to get rid of the smell of the tar, as one of the best remedies for baldness.

A very useful oil for baldness or to prevent the falling off of the hair may be made as follows :

Take of Oil of olives or almonds.....Half pint.
 Oil of origanumTwo drams.
 Oil of rosemary.....One dram.
 English lavender.....Forty drops.—*Mix.*

Frequent shaving of the head, or the temporary use of a wig, will often remove or prevent baldness. Cajeput oil being stimulating and aromatic, has been highly recommended in the case of premature baldness as an external application. It should be rubbed into the part or parts affected, with a piece of lint, night and morning, and if the effect is too irritating, it may be discontinued for a time and begun again. The following are also excellent hair-washes :

Take of Tincture of cantharides.....One dram.
 Spirit of rosemary.....One ounce.
 Elder-flower water.....One pint.—*Mix.*

This wash may be freely applied night and morning to the roots of the hair, by means of a piece of lint or sponge. Or,

Take of Eau de cologneTwo ounces.
 Tincture of cantharides.....Two drams.
 Oil of lavender and rosemary, of each...Ten drops.—*Mix.*

This may be applied once or twice a day, but if the scalp becomes sore, it must be discontinued for a time.

It may be stated as a rule, that all the vaunted specifics of advertising quacks fail in producing the results said to be obtained, and generally consist merely of some irritating or stimulating application, while many of them are positively injurious. Some cases of baldness, depending upon local disease, can only be cured by treatment directed to the removal of the morbid affection. (See HAIR, SCALP.)

BALM. (See MELISSA.)

BALM OF GILEAD. (See BALSAMODENDRON.)

BALMONY. (See CHELONE GLABRA.)

BALSAM, *bawl'-sum* [Lat. *Balsamum*]. The term is derived from two Hebrew words, signifying the "prince of oils." It was formerly applied to many more substances than it is at present. The balsams of Peru and Tolu, and of Copaiba, are the most generally known medicinally. The two former are used popularly as external applications. Tolu balsam is used to impart a pleasant flavor to lozenges, cough mixtures, etc.; at the same time, it undoubtedly exerts a beneficial expectorant action. Quarter of an ounce of gum acacia powder, 1 ounce of Tolu syrup, $1\frac{1}{2}$ to 2 drams of ipecacuanha wine, and water sufficient to make up 6 fluid ounces, forms a pleasant and good cough mixture for children,

to be given in from teaspoonful to tablespoonful doses, according to age. When fever is absent, and the cough getting loose, a dram of tincture of squill may be added with advantage to the above. (See BALSAM OF COPAIBA, MYROSPERMUM.)

BALSAM OF COPAIBA, *baw'l-sum co-pa'-ba*, acts decidedly upon the mucous surfaces of the body, and is employed in bronchitis, and in irritation of the urinary passages. It is extremely nauseous, and liable to disagree with the stomach. These properties are endeavored to be overcome by enclosing the medicine in gelatine capsules, and by preparing it in various ways, as by covering the taste with aromatics, such as cinnamon or peppermint-water. In the disease of females called the whites, it is considered one of the best medicines in use. It also ranks among the most effectual remedies for gonorrhœa. A good method of administering it in this disease is to take 2 teaspoonfuls of the balsam of Copaiba, 1 teaspoonful of the spirits of red lavender, 1 teaspoonful of the sweet spirit of nitre, 1 teaspoonful of laudanum, 2 ounces of gum arabic, and a gill or $\frac{1}{4}$ pint of water, and mix them together. Of this mixture take a tablespoonful morning, noon and night. Taken in this way, it will effect a cure in a few days. But to obtain prompt operation of the medicine, the patient must honestly abstain from every stimulating article of diet or drink, and impose upon himself a comparative state of rest. When active inflammatory or febrile action is present, Copaiba must not be used. The ordinary dose of the balsam of Copaiba is 10 to 40 drops, three times a day. The usual way of administering Copaiba is in capsules, thereby avoiding the unpleasant taste. (See COPAIFERA, GONORRHŒA.)

BALSAMODENDRON, *bal-sam-o-den'-dron*, in Botany, an important genus of plants, belonging to the Nat. order *Amyridaceæ*. The species are natives of the East, and are remarkable for the odoriferous gum-resins which exude from their trunks. *B. myrrha*, a small tree growing in the north-eastern parts of Africa, and in the adjoining parts of Arabia, is believed to be the principal, if not the only source of the fragrant gum-resin known in commerce under the name of myrrh. It is at first soft, oily, and of a yellowish-white color; on exposure to the air, it soon acquires the consistence of butter, and in time becomes much harder, and changes to a reddish hue. Medicinally, myrrh is regarded as a tonic, stimulant, expectorant, and antispasmodic, when taken internally; as an external application, it is astringent and stimulant. It is usually given in the form of tincture, of $2\frac{1}{2}$ ounces to 1 pint of rectified spirits, in doses of $\frac{1}{2}$ to 1 teaspoonful. It is frequently given also in combination with other substances, tonic or purgative, as iron, aloes, assafœtida, rhubarb, etc.; and is an ingredient of the incense

burnt in Roman Catholic chapels, and of some kinds of pastiles which are used for fumigation. The substance called balm of Gilead, or balm of Mecca, and which is supposed to be the balm of the Old Testament, is said to be procured from *B. gileadense*; some authors, however, name *B. opobalsamum* as its source. The tincture of myrrh forms one of the most agreeable washes in affections of the mouth, in the proportion of $\frac{1}{2}$ ounce of tincture to $\frac{1}{2}$ pint of water, and a few drops upon the tooth-brush is a most excellent habitual application in cleansing the teeth, especially if the gums are weak or spongy.

BALSAM OF PERU. (See MYROSPERMUM, BALSAM.)

BALSAM OF TOLU. (See MYROSPERMUM, BALSAM.)

BANDAGES, *band'aje-ez*, are strips of calico, linen, flannel, or of any other convenient material, employed to envelope in rolls any portion of the body requiring artificial support, or upon which it is requisite to produce pressure, or to retain dressing. The art of applying a bandage well, that is, both neatly and efficiently, requires some practice and attention, but it is often a most useful accomplishment; for a bandage if required at all, must be properly applied, otherwise it is worse than useless; if, therefore, none but the surgeon can undertake the task, it necessitates a much more frequent attendance on his part than might otherwise be requisite. In general, the first few applications of a bandage will be made by the medical attendant himself, and ought to be in the presence of the individual to whom the duty may be afterwards deputed. By careful attention on the one hand, and kind explanation on the other, much may be learned and taught, but not all, as the inexperienced bandager will discover on the first attempt; by all means, therefore, let the first beginnings be made on some one in health, before the call is made to the invalid. Attention to the following directions will facilitate the application of the previous practical lesson, or in some measure supply its place, if from circumstances it has been wanting. Whatever the material, the width of the bandage or roller must be proportioned in some degree to the size of the part to which it is to be applied; if too narrow, it is apt to be stringy, and to cut; if too broad, it does not adapt itself readily to the inequalities, and the pressure is unequal. For an ordinary-sized adult male leg, a bandage of two and a half inches broad is a good proportion; for the arm of the same person, one of two inches ought to be sufficiently well adapted. The material for bandages must neither be too strong nor too weak, ordinary "shirting calico" is a very convenient texture. The length, of course, must vary according to what is required, but rollers are usually put up in six or eight-yard lengths; they are better torn in one continuous strip, free from joinings, and without selvidge edge. The strip, when pre-

pared for use, must be rolled up as firmly as possible, either into a single or double head—the former is much the most generally employed. If the bandage is a new one, of calico or linen, the loose threads of the roll at each end must be roved off, otherwise they are troublesome when the roller is applied. Bandages may be applied in simple circles, in spiral, etc., or in reverses. They are also applied in various other forms to suit the different portions of the body. In applying a bandage, the rolled-up strip being held in the right hand, the end which is commenced with is secured by the first turn. If it be the simple circular bandage, round the trunk of the body, or round a limb of nearly equal girth throughout, either naturally, or from swelling, the roller is carried round and round each succeeding turn, slightly overlapping the one before it; if the spiral bandage be required, the rolls are carried up very obliquely; but if, as most likely, it is the reversed bandage, then, wherever the inequality of the parts prevents its being laid on flatly and evenly, the band must be turned upon itself, so as to become reversed, the surface of the cloth which was next the skin being turned outwards, and *vice versa*. It is difficult to describe the manœuvre, and it is a little difficult at first to execute it neatly and well, but when practised it becomes perfectly simple. This is by far the most useful form of bandage, and a person who can put it on well, will have but little difficulty in accomplishing the other varieties.

For the purpose of retaining dressings upon the head, nothing answers better than a close-fitting calico cap; a handkerchief will often serve every purpose, or the split cloth may be used; the upper tails being brought beneath the under ones, and fastened under the chin, the under tails being carried to the back of the head. When it is desirable to retain the head in one position, it may be done by bands attached to a cap, and fastened as required to a band going round the chest. When for this purpose, or to fix a broken rib, such a band is required, it ought to be from eight to ten inches wide, made of tolerably strong double calico, and sewed firmly round the body.

To retain a pad or poultice on the arm-pit, a good-sized handkerchief answers better than any bandage, the middle being placed at the arm-pit, the ends are crossed at the side of the neck opposite, carried under the corresponding arm-pit, crossed and brought and tied on the shoulder. Slinging the arm, a very simple business, is often very badly done—in almost every case the fore-arm should be supported throughout its entire length, and it is generally well to include the hand, especially in children. The simple sling handkerchief may be put on, but a much more confining sling is made by enveloping the elbow in the long side of a triangular handkerchief, fastened up into a little pouch at the centre, and

the point, including the hand, being fastened up to one of the ends going round the neck.

Upon the trunk of the body, dressings, blisters, etc., may be retained by means of a broad band of any convenient material, fastened round and prevented from slipping down by braces over the shoulders.

For bandaging the abdomen, a broad band, of whatever material is suitable, is generally made, the ends split for convenience of fastening either before or behind, and a triangular piece cut out of either edge at the centre, and the edges joined, in order to fit the shape of the region. In order to retain poultices, etc., at or near the groin, a piece of cloth is to be shaped to fit the region, a band long enough to go round the body, cross and fasten in front, is to be sewed to one end, and to the opposite point another small band is attached, which, passing between the legs, is brought up to the band behind. To retain dressings, etc., between the legs or nates, the double T bandage is used. For the groin and parts adjacent, the spica or figure of 8 bandage is also used. A roller eight yards long is taken, the end secured by one or two turns round the pelvis, and then the bandage is brought down across the front of the thigh, carried evenly between the legs, and again brought up and carried round the pelvis, these being repeated at each turn till the roller is exhausted.

For the extremities, the simple roller applied in reversed turns is generally used. Bandaging from above downward may be required, but generally it is upwards. There are various methods of commencing the application of the roller at the foot. The heel is covered by laying the end on the inner ankle, bringing the roller under the heel, then round the ankle so as to secure the end, from thence going down to the toes, and carrying the bandage up from that point round the foot and leg, reversing where required. The arm is to be bandaged—with the requisite modifications—by the reverse, like the leg. As a general rule, leg bandages, habitually-worn, ought to be put on before the individual gets out of bed in the morning. A bandage which gives pain after its application, without obvious cause, ought to be taken off, and re-applied. If there is reason to suspect inflammatory swelling beneath, it will be well to try the use of cold water before disturbing matters. There is some little management required in taking off a roller as well as putting it on: as each successive turn is unrolled, it should be gathered in a bunch in the hand, and not, as is often done, three or four yards of bandage at full length pulled round the limb every time. A many-tailed bandage is used to bandage the leg where it is an object to avoid the slightest movement. It is formed of a number of short strips of bandage, long enough each to go once and a half round the limb. They

are placed obliquely, and overlapping one another; they may, or may not, be joined by a central strip. Upon these arranged strips the limb is laid, and each strip in succession is brought round the limb, every succeeding securing the previous one. The advantage of the many-tailed bandage is, that it can be changed, either partly or entirely, if soiled, without the slightest disturbance. It is only necessary to attach a fresh strip to that which is to be removed, and pull the one way, and the other into its place. When, from movement, a bandage is liable to become displaced, the inconvenience is in a great measure prevented, by brushing a weak solution of starch or gum over the turns as soon as applied. This is different from the starch bandage which is so useful in many cases—fractures, etc. For this bandage, the roller is thoroughly saturated, as it is put on, with strong starch or flour paste, and, if requisite, brown paper pasted on the top of the first bandage, and another dry one put over all. In thinly-settled countries, where it might be requisite to move a person soon after a fracture, the foregoing application would prove simple, safe, and efficacious. It must not, however, be put on till inflammation has subsided. In many cases, in which bandages used formerly to be applied, they have been superseded by elastic materials, of which stockings and belts of all kinds are fabricated: elastic rollers are also manufactured. The flannel bandage unites at the same time support and protection to the surface—it is useful in rheumatic cases, and also when applied over the abdomen in diseases of that cavity. A much cheaper and thinner calico than that known as “shirting,” may often be used, bleached or unbleached. Where there is much tenderness over a part, or inflammation of the skin, even of an erysipelatous kind, it is well to use cotton wadding freely beneath any bandage it may be requisite to apply. When a bandage has been rolled round any part to its full length, it requires to be fastened—this may be done by one or two pins, or by stitching, or more readily still, by simply splitting the end, returning the two ends thus made in opposite directions round the limb, and tying them.

In bandaging the hand, the bandage may be from one and a half to two inches broad, according to circumstances; for the finger of an ordinary-sized man, it may be three-quarters of an inch. When the hand is bandaged, it is often well to fill in the hollows, of the palm especially, with tow or cotton wool. In bandaging a finger the band may first be carried round the wrist, crossed over the back of the hand to the root of the finger, round which it is carried, both up and down again, in spiral coils, it is then brought back to the wrist and fastened by splitting the end so as to make two strings. (See DISLOCATIONS, FRACTURES, WOUNDS.)

BANDOLINE, OR FIXATURE, *ban'-do-leen*, a preparation sold by perfumers, and much used by ladies for stiffening and fixing the hair. It is merely a thick mucilage, obtained either from Carrageen moss or gum-tragacanth, scented with eau de Cologne or other perfumed spirit. A very delicate bandoline may be prepared by soaking quince-seeds in cold water for a day or two, and then straining the mucilage.

BANEERRY, *bane'-ber-re*, in Botany, a name given to a species of *Actæa*, the root of which is sometimes used medicinally, on account of its antispasmodic, expectorant, and astringent properties. It is a perennial, herbaceous plant, from one to two feet high, with triternate leaves, the leaflets of which are deeply cut and serrated. The flowers are in racemes: the berries are black and poisonous. This plant, *A. spicata*, is also known by the name of Herb Christopher. It belongs to the Nat. order *Ranunculaceæ*.

BANTING SYSTEM. (See CORPULENCE.)

BAPTISIA TINCTORIA, *bap-te'-zhe-a tingkt-to'-re-a*, commonly called wild indigo. A plant belonging to the Nat. order *Fabacæ*, and found in many parts of the United States. Its antiseptic properties give it a medicinal character, though it is in addition, sub-astringent, cathartic, and emetic. It acts powerfully on the glandular and nervous system, increasing all the glandular secretions, and arousing the liver especially to a normal action. It is useful in scarlatina, typhus fever, and in that state of the system attending gangrene, or mortification. In threatened or existing mortification, it is extremely useful as an internal or external remedy. The decoction is an excellent application as a wash or gargle to malignant ulcerous sore mouth and throat, mercurial sore mouth, scrofulous or syphilitic ophthalmia, erysipelatous ulcers, gangrenous ulcers, sore nipples, etc. The baptisin, combined with leptandrin, podophyllin, quinia, or cimicifugin, in diseases where these agents are indicated, will be found valuable in typhus and typhoid fevers, and all diseases of the typhoid character, when administered internally. Dose: fluid extract, $\frac{1}{4}$ to $\frac{1}{2}$ teaspoonful; baptisin (the active principle), $\frac{1}{4}$ to $\frac{1}{2}$ grain; decoction, 1 to 4 tablespoonfuls three or four times a day. (See DECOCTION.)

BARBADOES LEG. (See ELEPHANTIASIS.)

BARBERRY, OR BERBERRY. (See BERBERIS VULGARIS.)

BARBER'S ITCH, *bar'-burz* [from Lat. *barba*, the beard], a contagious disease occurring on the bearded part of the face. The whole face sometimes becomes swollen with it, and the hair wholly or partially destroyed.

Treatment.—The hair must be kept closely cut, and the parts be frequently washed with castile soap and warm soft water. Tar oint-

ment is an excellent local application, and when that fails, the following persistently applied, will almost invariably effect a cure.

Take of Carbolic acid.....One dram.
 Pure glycerineOne ounce.
 Pure soft water.....Three ounces.—*Mix.*

Apply with a soft linen cloth three or four times a day.

An occasional dose of mild cathartic medicine, such as Rochelle or Epsom salts, will serve to expedite the cure :

BARBIERS. (See BERIBERI.)

BARILLA, *bā-ril'-lā* [Sp.], the commercial name applied to the impure soda-ash procured by calcining various species of *Salsola*, *Salicornia*, *Chenopodium*, and *Atriplex*. The plants grow near the sea, in salt marshes, and are extensively cultivated in Spain, Sicily, and the Canary Islands. The seed is sown at the end of the year, and the plants are gathered towards the end of autumn, dried, and burned. Barilla is a gray semi-fused mass of ashes, and contains about 30 per cent. of carbonate of soda. (See SODA.)

BARIUM, *ba'-re-un*, atomic weight 68.5, symbol Ba, in Chemistry, the metallic base of the alkaline earth *baryta*. This metal was discovered by Davy in 1809, and was named *barium*, from the Greek word *barus*, heavy, on account of the excessive density of its compounds. Its specific gravity is above 2. It is a white, slightly malleable metal, decomposing water at ordinary temperatures. It quickly tarnishes in the air, from the absorption of oxygen. When moderately heated, it burns with a deep-red flame. It forms two oxides—the protoxide acid, BaO, and the peroxide, BaO₂; the former only forms salts.

BARIUM, CHLORIDE OF, in Chemistry, made by dissolving carbonate of baryta in hydrochloric acid, evaporating and crystallizing. It is a colorless salt, crystallizing in flat four-sided tables, and dissolving in 3 parts of cold and 2 parts of hot water. Its solution forms the usual test for sulphuric acid, which it indicates by forming a white precipitate insoluble in nitric acid. In Medicine it is used both externally and internally as an irritant stimulant, and deobstruent in scrofula, glandular swellings and skin diseases. Internally it is generally given in the form of solution, 1 ounce of the chloride to 10 fluid ounces of distilled water, in doses of 8 to 10 drops. In large doses this is an active irritant poison, the best antidote for which is sulphate of soda or sulphate of magnesia.

BARK, *bark* [Dan.], in Botany, the external coating of an exogenous or dicotyledonous stem and its branches. It presents three distinct layers, independently of the epidermis which is common to it, with other external parts of the plant. These three layers, proceeding from within

outwards, are known as the liber, or inner bark; the cellular envelope, or green layer; and the suberous, or corky layer. Some botanists apply to these three layers, respectively, the Greek terms, *endophlæum*, *mesophlæum*, and *epiphlæum*. The bark is connected organically with the wood by means of the medullary rays and cambium-layer. It develops in an opposite direction to that of the wood; for while the latter increases by additions to the outer surface, the bark increases by additions to the inner. There are several kinds of bark which are largely used for medicines. These will be found noticed in separate articles, under the botanical names of the genera which include the plants producing them. For oak-bark (see *QUERCUS*); Peruvian bark (see *CINCHONA*); cabbage-bark, Surinam bark (see *ANDIRA*); Cascarilla bark (see *CROTON*); wild-cherry bark (see *CERASUS*).

The spring of the year, just as soon as it will peel, is the best time for gathering barks. The moss should be carefully removed from the bark.

BARLEY, *bar'-le* [Lat. *hordei semina*], when prepared as pearl-barley, is one of the most useful additions to sick cookery; its decoction, "barley-water," being a pleasant and extremely beneficial demulcent in all affections of the mucous membranes, and forming a grateful and nutritious beverage in fever; it ought, however, to be made considerably thicker in the former case than in the latter. A compound and very pleasant drink is made by adding to a quart of simple barley-water, figs sliced, and raisins stoned, of each $2\frac{1}{2}$ ounces, licorice-root sliced 5 drams, and a pint of water, the whole to be boiled down to a quart and strained. This compound decoction is not so well adapted for a fever drink as the simpler form.

In irritation of the urinary passages from gravel, or after the application of a blister, or from any other cause, barley-water is most valuable; its soothing properties are still further increased by the addition of an ounce of gum arabic to each pint of liquor. In catarrh, and irritable cough, or simply as an article of mild unstimulating nourishment, it is serviceable. The late Dr. A. T. Thomson—an English physician—recommended equal parts of barley-water and milk, sweetened with a little refined sugar, as a good food for infants brought up by hand. It may act upon the bowels. (See BARLEY-WATER, FOOD. HORDEUM.)

BARLEY-WATER. Ingredients: 2 ounce of pearl barley, 2 quarts of boiling water, and 1 pint of cold water. Mode: Wash the barley in cold water, drain it, then put it into a saucepan with 1 pint of cold water, and boil for a quarter of an hour; strain off the water and add 2 quarts of fresh boiling water. Boil it until the liquid is reduced to half; strain it and flavor it with lemon-juice for use. The nourish-

ment of barley-water may be much increased by adding $\frac{1}{2}$ to 1 ounce of gum-arabic, and boiling it with the barley. (See BARLEY.)

BAROMETER, *ba-rom'-e-tur* [Gr. *baros*, weight, *metron*, a measure], an instrument for measuring the weight or pressure of the atmosphere. It may be said to be the invention of Torricelli, who first demonstrated the existence of the atmospheric pressure by means of a column of mercury contained in a glass tube, but the practical application of this, as the means of determining the weight of the atmosphere, is more particularly owing to Pascal. The principle of the barometer is very simple. It consists of a glass tube about 34 inches in length, sealed at one end, and filled with mercury. This is inverted in a cistern containing the same fluid, when the mercury in the tube falls so as to correspond with the amount of atmospheric pressure on the metal in the cistern, and rises or falls in proportion to the degree of this pressure. The siphon barometer has in place of the cistern the open end of the tube bent upwards and exposed to atmospheric pressure. For indicating good and bad weather, the wheel barometer, invented by Hook, has long been used, but it is a very imperfect instrument. It is merely a siphon barometer connected with a needle, which moves round a graduated circle. In the shorter leg of the siphon a float is placed, which rises and falls with the mercury. A string attached to this float passes round a pulley, to which the needle is fixed, and at the other end there is a small weight, somewhat lighter than the float. When the pressure varies, the float sinks or rises, and moves the needle round to the corresponding points on the scale. The words *rain*, *fine*, *variable*, etc., generally appear on the graduated circle; but they do not always afford reliable indications of the weather.

The rising of the mercury in the upright barometer foretells fair weather, and its falling, rain, wind, snow, and storms. In hot summer, if the mercury falls, we may expect thunder. In winter, a rising indicates frost, and falling, thaw. In bad weather, if the mercury rises, notwithstanding the weather does not alter, a continuance of fair weather may be expected as soon as the change comes. In fair weather, when the same occurs, unsettled weather may be expected. If the mercury is unsettled, the weather will be so also. A steady barometer indicates that the weather at the time will last. In the upright barometer, to which these directions apply, it is useful to notice that the top of the column of mercury is sometimes flat, sometimes convex, and at other times concave. When it is flat or level, a continuance of the same weather is indicated; when it is convex, the mercury is rising; and when concave, it is falling—and the weather may, of course, be expected to correspond. The connection between the variations of the

weather and the pressure of the atmosphere is, however, a subject very ill understood. For determining altitude, the barometer is an invaluable instrument. In ascending mountains, the mercury is found to sink about a tenth of an inch in 90 feet; so that, if the mercury fall an inch, we have ascended near 900 feet; but this is subject to variations from change of temperature and other causes, which render various corrections necessary. There are many forms of the mercurial barometer, but they are all modifications of the siphon or the cistern. The *aneroid barometer* is an instrument used for determining the variations of atmospheric pressure, without the aid of a liquid, as in ordinary barometers. Its action depends upon the principle, that if a very thin metallic tube be coiled, any internal pressure on its sides tends to uncoil it, and any external pressure to coil it still more. The instrument essentially consists of a thin metallic tube, curved so as to form about seven-eighths of a circle. This tube, being exhausted of air and hermetically closed, is fixed by its middle, so that whenever the atmospheric pressure diminishes, it uncoils; and, on the other hand, whenever the pressure increases, it contracts.

BAROSMA, *bar-os'-ma* [*Buchu*], in Botany, a genus of plants belonging to the Nat. order *Rutaceæ*. The leaves of several species, such as *B. betulina*, *crenata*, *crenulata*, and *serratifolia*, are used in medicine for their aromatic, stimulant, antispasmodic, tonic, and diuretic properties. They seem also to have a specific influence over the urinary organs. The plants yielding them are natives of the Cape of Good Hope. In commerce they are known as Buchu leaves, and are thus named in the British Pharmacopœia. They contain a peculiar bitter principle called *Diosmin* or *Barosmin*, and a powerfully-scented volatile oil. Buchu is useful in all diseases of the urinary organs attended with increased uric acid; in irritation of the bladder and urethra attending in gravel, catarrh of the urinary bladder, and incontinence of urine connected with diseased prostate, in dyspepsia, dropsy, cutaneous affections and chronic rheumatism. By many physicians it is regarded as valuable in all diseases of the sexual organs, even of long standing; in constitutional debility, incident to secret habits of the young. Buchu is pleasant in its taste, efficient in its action, and can be used in all cases with perfect safety. It is a moderate excitant, diuretic and tonic, and is said to have afforded essential service in chronic cases of rheumatism and gout. Acting on the urinary secretion, the urine is separated in larger quantities, and exhales an aromatic odor. The infusion of Buchu leaves, made from $\frac{1}{2}$ ounce of the bruised leaves, and 10 fluid ounces of distilled boiling water, is given in doses of 1 to 4 fluid ounces, three or four times a day; the tincture, $2\frac{1}{2}$ ounces of these leaves to 1 pint of rectified spirit,

in doses of 1 to 2 teaspoonfuls. Dose of fluid extract, $\frac{1}{4}$ to 2 teaspoonfuls.

BARRENNESS. (See STERILITY.)

BARYTA, OR BARYTES, *ba-ri'-ta* [Gr. *barus*, heavy], in Chemistry, one of the alkaline earths, discovered by Scheele in 1774. It is met with, combined with sulphuric acid, in cawk or heavy spar, and combined with carbonic acid in witherite. It may be formed by decomposing the nitrate by a red heat; and is very similar in its properties to caustic lime. It is grayish-white; becomes hot when moistened with water, falling to a fine white powder forming the hydrate. Its specific gravity is 5.4. It has an extremely acrid, caustic taste. The carbonate and all the soluble salts are powerful acrid poisons. The best antidote is sulphate of soda or magnesia. (See BARIUM.)

BASE, *base* [Lat. *basis*, a foundation], in Chemistry, a term applied to those bodies which unite with acids or halogens to form salts or bodies analogous thereto. The basic property of an element is not absolute, but only relative; as the same body may act as a base or an acid with a different element. Thus we find chromium acting as a base in the form of sesquioxide, but as an acid in the form of teroxide or chromic acid.

BASILIC VEIN, *ba-sil'-ik vane* [Lat. *Basilica vena*], the large vein that runs in the inner side of the arm, and terminates in the axillary vein. The branch which crosses at the bend of the arm, from the long median vein to join the basilic is called the *median* basilic. Either of them may be opened in the operation of blood-letting.

BASILICON, *ba-sil'-e-kun* [Gr. *basilikos*, royal, or of great virtue], in Pharmacy, the name sometimes given to an ointment, composed of 2 parts resin, 4 parts of simple ointment, and 1 part yellow wax. It is much used as a stimulant dressing to foul or indolent ulcers, with a view to keep up the discharge; and as a vehicle for other stimulating substances, such as savin and Spanish flies. It is called *Unguentum Resinæ* or *Ceratum Resinæ*, in the pharmacopœia. Formerly basilicon was prepared with yellow wax, pitch, resin, and olive-oil, and was hence named *Unguentum Tetrapharmacum*, "the ointment with four drugs."

BASSORA GUM, *bas'-sor-a*, a whitish or yellowish substance brought from the neighborhood of Bassora. It differs from most gums in being nearly soluble in water. The plant yielding it is believed to be a species of *Mimosa*. It contains a peculiar principle, called *Bassorin*, which also exists in gum-tragacanth.

BASTARD, OR FALSE CROUP. (See CROUP, FALSE.)

BATHS AND BATHING, *bathz*, *bathé-ing*. Applications to the

surface of the body, either general or partial, in the form of liquid, vapor, or gas, are now comprehended under the term bath.

Water-baths may be simple or medicated.

As regards temperature, they may be cold, tepid, and hot.

As regards application, they may be general or partial, shower, cold affusion, douche, sponge, wet sheet.

Vapor and hot air are both used as baths.

The extreme vascularity, the nervous sensibility and sympathies of the skin, and its important functions as an excreting organ, all render it a most important medium through which to impress and act upon the system generally. The subject, till of late years, has been strangely neglected and overlooked by medical men; brought prominently forward under the name of "Hydropathy, or the Water-cure," by Preissnitz and his followers, it has unfortunately been carried far beyond its legitimate lengths, and become associated, in name, with quackery and undue pretensions. That much good is to be done by the use and application of water, simply, in the treatment of disease and disorder, there can be no question; neither can it be doubted, that much and serious evil has resulted from the indiscriminate and ignorant employment of this powerful agency. With the medical profession it rests to place the subject upon its legitimate basis, by taking it into their own hands, and employing it rationally and scientifically.

THE COLD BATH.—The cold bath may be of any temperature up to 80° or 85° Fahr., the effect upon the system varying, of course, according to the temperature, the length of time it is endured, and the amount of muscular movement exerted during that time. A single plunge into ice-cold water may depress less than a longer continued bath of a higher temperature. As a rule, individuals of weak, nervous and circulatory powers, do not bear well the effects of cold bathing, it robs them of an amount of animal heat, which they cannot readily again make up; it produces nervous exhaustion, unrelieved by reaction to the surface.

When an individual, after the cold bath, in any form, remains chilled, the fingers and lips blue, the countenance pale, and when languor and drowsiness succeed, he may be certain that more harm than benefit is being derived from the custom, and that it must be modified or given up.

In such a case, if the bath has been usually taken before breakfast, the hour should be altered to a couple of hours after that meal, this with some will be quite sufficient to make the difference between agreeing or not; indeed, it requires a person of very good vital power to derive real benefit and comfort from bathing before breakfast. If the change in hour does not alter the effects of the cold bath, something may be due

to its low temperature ; or the bather, especially if he be not a swimmer, may expose himself too long to the depressing influence, he may be in the habit of going into the water after his powers have been exhausted by much exercise, or when he is in too chilled a condition. All these points require consideration, before, either the undoubted good effects, or the comfort of bathing are given up as unattainable. The last point mentioned is one on which particular caution is required ; many persons in dread of going in to bathe too hot, run to the other extreme, and allow themselves to become so chilled, that reaction will not come on. After coming out of a cold bath, the skin ought to be well rubbed with a rough towel, till a glow is felt ; or the hair-glove, now so well known, may be used. The above remarks apply to the application of cold water generally, to the skin, in whatever form. Few old people can take cold baths with advantage, and the perseverance in their use may lay the foundation of rheumatic, urinary, or other disease. Those who are liable to head affection, should not take the general cold bath ; for them the shower bath is preferable. Females should not bathe in cold water during the menstrual period. Some persons who cannot bathe in fresh-water, can do so in the sea ; the saline ingredients producing a more stimulant effect upon the skin ; sometimes, however, the stimulation goes so far as to produce a painful rash, which forces the person to give up the custom. The restorative and tonic effects of cold bathing are undoubted in many cases, if the mode of taking it be properly regulated. As a *general rule*, five or six minutes immersion is sufficiently long. The cold bath is beneficially employed in spasmodic asthma, the chronic stages of whooping-cough, in nervous diseases, unconnected with disease of the brain, and in paralysis consequent on severe inflammatory attacks of the brain and spinal column. In short, from whatever cause it may arise (disease of the internal viscera excepted), when great relaxation and debility exist, the cold bath, properly employed, will be found a very valuable remedial agent. The cold bath is inadmissible when there is a tendency to apoplexy, heart disease, inflammations of the internal structures of the body, and cutaneous diseases.

THE TEPID BATH.—The tepid bath, of a temperature varying from 85° to 94° may be used—about 88° is an agreeable and convenient standard. Of course the tepid bath involves the use of a receptacle for the water. It does not produce the shock to the system like the cold, and the person may remain in it from a quarter of an hour to twenty minutes. The tepid bath relaxes and purifies the skin, and promotes the insensible perspiration. For the purposes of cleanliness and comfort it is most generally applicable. After fatigue from traveling, hunting, shooting, &c. ; in irritable states of the system, with dry or chafed skin,

the tepid bath is at once grateful to the feeling, and salutary. Neither the tepid bath, nor any other, is well if taken soon after a full meal.

THE WARM OR HOT BATH.—The warm, or hot bath is, or ought to be, a remedial agent only, not one for general use. Its temperature ranges from 95° to 102° Fahr — 96° is the most general standard. The warm bath is used to promote reaction, to allay pain, spasmodic or inflammatory, to soothe convulsive action, or carried to its fullest extent, to cause faintness. The time for remaining in the warm bath is generally from twenty to five-and-twenty minutes, but this must be regulated, somewhat, by the effect required. The hot bath of a temperature of 100° is a powerful stimulant agent, to be used cautiously, and rarely without medical advice; in disease characterized by extreme depression, coldness, etc., it is useful. In the employment of the baths generally, persons who are the subjects of any organic disease, or have a tendency to acute attacks of functional disorder, such as determination of blood to the head, etc., must be very cautious, and ought if possible to have medical advice. The regulation of the temperature of baths ought never to be left to the sensations, the thermometer is the only trustworthy guide, and, indeed, is an article which no house ought to be without; the price of the instrument is now extremely low, and whether for the bath, the temperature of the room, or the instruction of a child, it is equally useful.

The hot and tepid baths must be used with great caution by persons of great obesity, or where there is a tendency to apoplexy, heart disease, or hemorrhage, and in febrile diseases where there is a dry, hot skin, and an acute circulation, also during the menstrual period and later stages of pregnancy. It has proved signally useful in the inflammatory attacks of children, remittent fevers, insanity, infantile convulsions, Bright's disease, diabetes, tetanus, painter's colic, and inflammatory affections of the kidney, bladder and womb, and also in the passage of either renal or biliary calculi.

THE SHOWER BATH.—The shower bath, whether of fresh or salt water, whether quite cold or tepid, is a valuable agent in the treatment of many nervous affections; it will suit some whom the general bath will not. It is well for persons of weak habit, or who suffer from the head, to have a thin layer of warm water put in the bottom of the shower bath before getting in. In its operation and effects it is very similar to the cold bath, but the shock it communicates is much more violent, particularly if the quantity of water is great, the temperature low, and the fall considerable. It is employed with success in congestive and hysterical headaches; in mania, chorea, or St. Vitus' dance, epilepsy, hypochondria

and nervous prostration, its use is contra-indicated in the same class of cases as the cold bath.

THE DOUCHE BATH.—The douche bath consists of a compact stream of water, either warm or cold, allowed to impinge forcibly upon any portion of the body. In some bathing establishments, the douche stream is of great force and bulk. Domestically, the most familiar douche instrument is the pump, and a most efficient one it is to strengthen a limb which remains weak after an accident, such as fracture or sprain,—it must be used till aching is produced. The most convenient domestic douche is a watering can without a nozzle, but a jug will do; in short, whatever will send a stream of water upon the part required. Additional force is obtained by the person administering the douche standing upon a chair. It is a very powerful agent and requires to be used with much caution. Infantile convulsions are very much relieved by a thin stream of cold water directed on the head, from an elevation of 2 or 3 feet. The same treatment has been found to quiet the wildest maniacs. In syncope or fainting, the cold douche suddenly applied to the spine, has often an instantaneous effect in restoring consciousness; directed on the thighs and pubes, it is said to relieve the spasm in spasmodic stricture of the urethra, and in stiffness of joints after injuries, or resulting from rheumatism, the use of the cold douche has often an excellent effect.

THE SPONGE BATH.—Sponging the skin with water is used in lieu of a bath, for purposes of cleanliness and comfort. It may produce depression if employed before breakfast. Partial sponging, sponging with tepid water, changing the hour, or having a cup of coffee on rising early obviate the effect. Rough friction is to be employed after.

THE WET-SHEET BATH.—The wet-sheet bath is sometimes, by misnomer, called the cold wet-sheet. It is, in fact, a warm bath, or rather a large warm poultice, kept warm by the animal heat. It is formed by enveloping the person in a sheet, wrung out of cold or tepid water, and covering or packing him up with layers of blankets; very free perspiration is the result. It is a most useful remedy and might with advantage be more generally used. Sponging with cold water after the use of this bath is occasionally practised.

THE VAPOR BATH.—The vapor bath produces free perspiration, and may be used whenever that is required, as in incipient cold. It is very relaxing. Many different forms of vapor bath have been invented. A small kettle to place on the fire, with tubing to convey the steam underneath the blanket or oilcase in which the person is enveloped, forms a good vapor bath. A simple extempore vapor bath may be made by

placing a vessel of boiling water underneath the coverings of the patient, and keeping up the steam by means of hot stones or metal.

The hot-air bath is used for the same purposes as the vapor bath, but is more stimulating. Apparatus of various kinds for this bath may be had at the manufacturers.

A very powerful and convenient vapor bath may be extemporized thus—procure three or four new porous bricks, boil them in water for an hour and half, till perfectly saturated, then place them on the floor; seat the patient on a chair—of open cane-work, if possible—over the bricks, and pin a blanket round the neck or waist, as the case may be, so as to surround the person, and confine the steam, which rises abundantly. This form of bath is far more available in the houses of the poor than a hot water bath, and is more efficient—for sciatica and rheumatism of the lower limbs it is of much value. It is very useful in cases of bronchitis, pleurisy, catarrh, rheumatism, skin diseases.

HIP AND FOOT-BATHS.—Hip-baths and foot-baths are used where a full bath is unnecessary. The former, either cold, tepid, or warm, is extremely useful in affections of the loins, hips, etc. The foot-bath, generally used as a derivative, ought to be as high a temperature as can be borne, and ought to redden the skin after the immersion. If a stronger effect is requisite, an ounce of mustard, and a couple of handfuls of salt may be put in the water. To reap the full benefit of the foot-bath, the extremities should either be clothed in woolen stockings, or wrapped in flannel immediately on coming out of the water. The fact must always be kept in mind, in using the foot-bath in cases of insensibility, that it may be so hot as to scald, and that it cannot be complained of. The best mode is to use the thermometer, and not to raise the heat above 110°.

The foot-bath is beneficial in colds, headaches, coughs and slight fevers.

The hip-bath in sciatica, rheumatism and irritable conditions of the bladder.

SEA-BATHING.—Sea-bathing, when properly employed, is a stimulant, in the first instance to the skin, and further to the body generally. The stimulant action upon the skin, indeed, even proceeds so far as to cause eruptions, somewhat resembling scarlatina; in some cases the smarting from these eruptions is so severe, after each immersion, that the practice has to be discontinued, at least for a time.

Persons who are unaccustomed to sea-bathing may sometimes find it of service to take two or three tepid sea-baths, before going to the open sea. There is, however, no necessity, as some suppose, for a course of medicine beforehand, unless the individual is decidedly out of health,

and then sea-bathing should not be engaged in before consultation with a medical man, who may give medicine for the existing ailment, but certainly persons in good health have no occasion for preparatory medicine. Individuals who are very plethoric, who are the subjects of any organic disease, or who have any tendency to fulness about the head, also aged persons, should not bathe without medical sanction.

If a person is in a state of body to benefit by bathing, and if the good effects are not counteracted by too long immersion in the water, the bath should be followed by reaction, which conveys a sensation of increased strength and spirits, a glow of warmth on the skin, and increased appetite; if, on the other hand, the reaction is tardy, if the skin continues cold and blue-looking, if the fingers and toes become what is called "dead," if there is bodily and mental depression, with languor and sleepiness, it is certain the bathing does not agree from some cause or other.

When cold sea-bathing does not agree, or is too depressing, the tepid sea-bath is often of much service, and does not relax like fresh water tepid bathing.

THE SULPHUR BATH is a valuable means for the external application of that remedy. The apparatus consists of a frame large enough to enclose the whole body, covered with some impervious material, such as wax-cloth, with an aperture at the apex with a loose frill attached, so as to tie around the patient's neck. The sulphur is placed on a heated plate on the ground, within the apparatus, and the body is exposed to the fumes for fifteen or twenty minutes, or longer. It proves exceedingly useful in cutaneous and rheumatic diseases, and in lead colic.

ALKALINE BATH.—This is very useful in scaly skin diseases, in gout, rheumatism, and affections of the urinary organs. It may be made by dissolving 1 pound of carbonate of soda in 25 gallons of soft water, or 4 ounces of carbonate of potash to same amount of water.

NITRO-MURIATIC ACID BATH is made by adding to 30 gallons of warm water, in a wooden bath-tub, $1\frac{1}{2}$ ounces of nitric acid, and 3 ounces of muriatic acid. It should be repeated frequently, the patient remaining in the bath fifteen or twenty minutes each time. Useful in torpidity of the liver, and in various other hepatic affections.

IODINE VAPOR BATH.—Much used in old scrofulous cases, is made by adding 1 dram of iodine, $\frac{1}{2}$ an ounce of iodide of potassium, and 2 ounces of solution of potash, to 30 gallons of water.

CARBOLIC ACID BATH.—Add 2 drams of carbolie acid, and 2 ounces of pure glycerine, to 30 gallons of water. Useful in skin diseases characterized by a scaly eruption.

THE TURKISH BATH.—There are few subjects perhaps upon which less

accurate information is possessed by the public than upon Turkish baths. The Turkish or oriental bath has been known from antiquity, and used more or less by all Eastern nations, though at present it is chiefly patronized by the disciples of Mahomet. How much of the effeminacy and sensuality of that race may be attributed to its use or abuse, it is not easy to say. The ancient Greeks and Romans were also acquainted with the use of baths of a similar kind; and we can trace mention of them up to the time of Hippocrates, the Father of Medicine, himself. They were undoubtedly introduced into England and into France with the Roman conquest, and were extensively made use of for centuries.

The great principle of the Turkish bath is that of a chamber supplied with heated air, not dry, but with a little fluid—just enough to moisten or soften the skin, and allow of the free escape of its secretions, which takes place to a remarkable extent, thus relieving congestion or obstruction of internal organs, and favoring the circulation of blood through the fine capillary vessels of the skin itself. Exhalation from the lungs is also favored, so that the body gets rid of impurities by both channels. Of course the building in which the bath is so administered must be one adapted and intended for the purpose, with all the appropriate chambers, the tepidarium, calidarium, etc., and skilful attendants must also be provided, who, remarkable to say, are not found to suffer in health from their residence there. We would advise people not to be too anxious to have an enormous quantity of cuticle or scurf rubbed off their skin by the attendant whose duty this is. Some persons are apt, from having read the exaggerations that have been circulated on this subject, to measure the benefit they are likely to derive from the bath by the amount of the matter which is removed by the hair-glove. Finally, let it be clearly understood that the Turkish bath is a very useless remedy in some, if not in most of the cases for which its help is sought by the ignorant, and that in many cases it is likely to prove hurtful and dangerous, so that there can be no greater folly than its use by an invalid without the advice of a properly qualified medical practitioner, who will always be ready to point out the case (and there are many such) likely to receive benefit from its proper and discriminate application. Some people are so stupid they cannot see that it does not follow that because A. derived advantage from the use of a Turkish bath, B. must necessarily do so, because his case seems to them to resemble A's. They forget that there may be many other circumstances connected with B's case which might make the use of a bath hurtful to him. We, therefore, hope to hear less for the future of the reckless gratuitous advice tendered by the public to their friends on this subject;

and still less of the public being so silly as to follow the advice of those who are interested in the use of baths for pecuniary considerations.

Amongst the number of cases likely to be benefited (due attention being paid to the precautions aforesaid) may be mentioned chronic rheumatism, and gout, especially those cases followed by deposits in the joints, and scaly eruptions upon the skin; certain cases of sciatica and tic douloureux, as also certain chronic diseases of the lungs, stomach, and liver. It has been known to act as a charm in removing local dropsies, as of the feet and legs, when not depending upon any serious organic disease. We hope to see a wider application of the Turkish bath as a means of treating disease upon scientific principles, as a preventive of disease, as a promoter of cleanliness and of health, and this is only to be effected by its moderate and judicious employment, since nothing will be more calculated to drive it into the regions of obscurity and neglect than the intemperate and ill-advised encomiums of those who are neither capable of understanding its action nor of judging of its effects, but who are disturbed by an uneasy desire to try anything and everything that is new.

THE SWIMMING BATH.—This form of bath, which is now—thanks to the liberality and enterprise of our town corporations, or of public companies—to be met with in almost every city, must be looked upon as an important means of improving public health, as well as affording an opportunity of learning the art of swimming to many who, from being resident in inland towns, would otherwise remain ignorant of it. It is generally resorted to as a pleasure and luxury, or for the purposes of ablution, or healthful and most useful exercise. The bath should be spacious, and its temperature should be maintained at a pitch which will render its use agreeable as well as safe even for the comparative invalid who cannot remain any length of time in perfectly cold water. Salt water should also be added in sufficient quantity, if possible, as by this means its action is rendered more salutary.

HAND SHOWER BATH FOR CHILDREN.—A very useful article has been invented of this kind, consisting of a bell-shaped tin vessel, the bottom of which is pierced with holes, and from the top of which rises a hollow tube. To use it, the bell must be immersed in a basin of water, and then the thumb or finger must be placed over the aperture of the tube, which serves as a handle. If the thumb be kept firmly pressed over the aperture, the atmospheric pressure will keep the bell quite full of water while it is raised over the head or any part of the person to whom the shower is to be applied. By raising the thumb, the water is suddenly discharged in a shower. This bath is invaluable as a means of applying

all the benefits of a shower bath to children, without any of its terrifying accompaniments. It is peculiarly valuable, and has been much used by the writer in cases of nervous disease among children, such as chronic St. Vitus' dance, etc. The intensity of the shock may be varied according to the height at which the instrument is held; and, of course, the temperature of the water may be varied to suit the individual cases of diseases. As a rule, the use of the shower-bath should not be persisted in with children to whom it continues to be very irritating and disagreeable, after the first few applications. When administered as above, many children become exceedingly fond of using it.

ARTIFICIAL SEA-WATER FOR BATHS may be made as follows:

Take of Common salt.....	Four pounds.
Iodide of potash.....	Four drams.
Lime-water	Three ounces.
Sulphate of magnesia.....	Six ounces.
Water.....	Sixty gallons.— <i>Mix.</i>

It may be used at any degree of temperature. This is so exact an imitation of sea-water, that sea-plants, and even salt-water fish, are said to live and thrive in it. (See ABLUTION, AFFUSION, CRAMP, HEALTH, HEALTH RESORTS, CATARRH OR COMMON COLD.)

BATTLE'S SOLUTION OF OPIUM, *bat'-lee's*. Battley's sedative solution, *Liquor opii sedativus*, is a preparation of opium introduced by Mr. Battley, and long esteemed as an opiate more certain and less disagreeable in its effects than most others. It is merely a strong aqueous solution of opium resembling the *Extractum opii liquidum* of the British Pharmacopœia. The dose is from 5 to 20 drops.

BAYBERRY. (See MYRICA CERIFERA.)

BAY-SALT, *ba'-sawlt*, coarse salt obtained by the evaporation of sea-water in large tanks, or bays, as they are technically termed.

BEAN, *bene* [Ang.-Sax.] The various species of bean are most nutritious to those whose stomachs can digest them; they are used either young and fresh gathered, or old. The nutriment they afford, as shown in the case of the miners of South America, who live almost exclusively upon them, is calculated to sustain a high condition of muscular development and vigor. Garden-beans as brought to table in this country, must be avoided by those of weak digestion. They are less likely to disagree if deprived of their skins.

• BEAR-BERRY. (See UVA URSI.)

BEARD, *beerd* [Ang.-Sax.], the hair growing upon the chin, and other adjoining parts of the face, in man; and sometimes, though very rarely, in women. It is thicker than the hair of the head, and longer, when suffered to grow, than the hair on the other parts of the body. It

is usually of the same color as the hair of the head, but always the same as that of the eyebrows. The beard is most abundant among those of the Caucasian race, and many persons, natives of Africa, America, and Australia, have little or no beard. The beard was held in great estimation among the Jews, as it is until the present day among the Arabians. "By the beard of Aaron," or "by the beard of the Prophet," is looked on as the most solemn oath of a Jew or a Mahomedan. Nearly all the eastern peoples prided themselves upon the fashion and form of their beards; and we have it expressly on record, that the Assyrians and Persians indulged in very long beards. Among the Greeks, and especially among the Greek philosophers, this ornament was held in high estimation. Athenæus tells us that the Greeks wore the beard until the time of Alexander the Great, who ordered his Macedonian soldiery to shave it off, lest the growth of it might give a ready handle to their enemies in battle. Philosophers have nearly always affected the beard as a mark of gravity, and even venerableness; and Strabo tells us that the Gymnosophists of India wore it long. The Romans wore the beard until the 5th century A. D., when Publius Ticius Mena brought over a colony of barbers from Sicily to exercise their profession on the Roman chins. Augustus, and the Roman emperors, till Hadrian, shaved their beards; and Plutarch says that Hadrian allowed his to grow to hide the scars on his face. All the imperial personages after Hadrian grew their beards. The Lombards (or *Longbeards*), the early French, the ancient Britons, and the Anglo-Saxons, after they conquered Britain, all nourished the growth of their beards with peculiar care. When Duke William conquered England, he insisted rigorously upon carrying out the Norman custom of shaving; and he thus constrained many of the high-spirited Britons rather to abandon their country than their whiskers. But, by-and-by, they got the advantage of their ruthless conquerors; and the higher classes indulged in the moustache, or the entire beard, from the reign of Edward III., down to the time of Charles II. In the reign of Charles II., the entire face was often shaven; sometimes a slight moustache was tolerated, and sometimes the whiskers or hair on the cheeks was grown. During the last fifty years, growing the whole beard has become very common in Europe and America. First, the practice began in Bonaparte's army, then it extended to Italy, then to Germany, then to Spain and Russia, and, lastly, to England and America, where the beard is now very common. Whatever opinion may be entertained as to the advantages or disadvantages of the beard, there can be no doubt that it forms a most valuable protection to the throat and lungs, and should be cultivated by all in whom these organs are delicate or susceptible. To stone-masons, and others who are much in an atmos-

phere charged with dust or particles of foreign matter, the moustache serves to prevent these from getting access to the lungs.

To beautify and promote the growth of the beard, use the following : Mix $\frac{1}{2}$ a pound of olive oil with $\frac{1}{2}$ a dram of oil of origanum, and $\frac{3}{4}$ of a dram of oil of rosemary. This will promote growth and have a tendency to make it curl. (See HAIR, BARBER'S ITCH.)

BEAR'S-GREASE, *bārz'-grese*, a commodity which, as its name implies, is made from the fat of bears, and is one of the most nourishing things it is possible to obtain for the hair. It is so scarce, however, that most of those pomades which are so tastefully done up for sale by perfumers and others, consist mostly of beef marrow, hog's lard, or calves' fat, nitric ether, essence of ambergris, etc. The fictitious bear's grease is thus composed, according to the best recipes :—Washed hog's lard, 1 lb. ; flowers of benzoin, $\frac{1}{2}$ oz. ; and balsam of Peru, $\frac{1}{4}$ oz. Melt together, pour off the clear portion, and stir until nearly cold.

BEBERINE, or BEBERIA, *be-ber-éné*, an alkaloid, discovered by Dr. Rodie, of Demerara, in 1834, in the bark of the bebeeru tree (*Nectandra Rodiæi*). When dry, it is a white, amorphous inodorous powder, very soluble in alcohol, less so in ether, and very sparingly in water. It is commonly administered in the form of the sulphate, which very much resembles the sulphate of quinine in its action and uses, and has been recommended as a cheap substitute for it, but it is less powerful. It is tonic, antiperiodic, and febrifuge ; and is given in doses of from 1 to 10 grains.

BED, BED-ROOM, *bed*, *bed'-room* [Ang.-Sax.] IN HEALTH AND IN SICKNESS.—The fact that civilized people spend on an average, about one-third of their lives in their bed-rooms, is quite conclusive as to the importance of their salubrity being a first consideration with every one. Whatever the public rooms, bed-rooms should be as spacious, lofty, and well-aired, as circumstances will permit. Unfortunately the reverse of this is the general rule, and we have close, small sleeping-apartments, crowded and ill-ventilated nurseries, and bad health. Good ventilation will do much, but it will do far more if aided by plenty of space. During the day-time, there is much less danger of persons generally, suffering from want of fresh air, than during the night, when in sleep, they are many hours confined to one place. Every respiration of the sleeper contaminates a certain amount of air, and as a matter of course, the smaller the space around, the sooner will the contamination of the whole body of air contained in that space be completed, and become loaded with an amount of carbonic acid, injurious to health. The room must be sufficiently large—and this is rarely the case in modern houses—to

supply pure air for respiration during six or eight hours, or some means must be provided for carrying off the impure atmosphere. This, certainly, is not to be effected by closed doors and windows, and blocked-up chimneys, assisted in their injurious operations by closely-drawn curtains, which might be contrived for the special purpose of enveloping sleepers in their own exhalations, rendering sleep unrefreshing, and waking a painful, rather than a pleasurable operation; it cannot be otherwise, after the poison of carbonic acid has been regularly inhaled for the last few hours.

If the door of a sleeping-apartment must be locked, the upper panels ought to be perforated for the admission of air, but the purpose is much better answered by the door being left ajar, while it may be rendered equally secure by means of a chain-bolt. There is an advantage in admitting the fresh air by this channel, for it must be warmed in some degree in its passage through the house.

Air may be admitted directly from without, through the window, left slightly open at the top, or better, by means of barred glass or perforated zinc. Some zinc plates are made so that the perforations may be opened or closed at pleasure.

It is not sufficient to let in pure air, the impure must have some means of escape, and for this, the chimney—and no sleeping-room either for rich or poor should be without one—is the most ready channel, and perhaps the best, if under proper arrangements. In former times, when fire-places were ample and lofty, the chimneys were of themselves sufficient to carry off bad air; but since, by change of fashion, the openings have been lowered and contracted, they cannot do this. The air, warmed by respiration, ascends to the top of the room, where it must remain till it becomes cooler, but not more wholesome, it descends to be rebreathed, and reaches the level of the breather's nostrils before it can pass up an ordinary chimney. Thus, a bed-room to be healthy, must have a sufficient entrance for good air; must have a proper exit for that which has been rendered impure, and should have space if possible; the greater the number of sleepers, the more requisite the fulfilment of these conditions. It must also be borne in mind, that a light, and especially a gas-light, equally with the lungs contaminates the air. It is advisable when a light is burned in a sleeping-room, to place it so that the fumes may pass up the chimney; if a gas-light, it ought to be provided with a special tube to carry off its fumes; without this it must be a source of evil, with it, of good, for in the latter case it increases the current of air through the room generally.

Fires in bed-rooms are frequent sources of impure air, uncomfortable sleep, and morning headaches. During the first hours of night, when

burning briskly, the fire promotes ventilation; but when, as often occurs, towards morning, it smoulders down, and becomes choked with ashes, it has not sufficient power to create a draught; the current of air is reversed, instead of passing up the chimney, it passes down, carrying with it into the room a very deteriorated atmosphere, perhaps loaded with sulphurous gases. None who regard health will have curtained beds; it is difficult to conceive what other purpose the huge masses of drapery around a bed can serve, than to collect dust, and when drawn, to confine impure air around the sleepers.

For the young and middle-aged, hair, or where these cannot be afforded, firm wool mattresses should always be used; feather-beds never. The cotton mattress requires more frequent dressing and cleaning than the hair. For the aged, who are deficient in natural warmth, a feather-bed is quite admissible. However perfect the provision for ventilation of a bed-room during the night may be, it must require additional purification in the morning. As a rule, the window should be opened as soon as the occupant is about to leave the room, or even before in summer, and the bed-clothes turned down over the end of the bedstead, or thrown entirely off, for at least an hour before the bed is made up for the day; in this way, perspiration, and emanations which take place from every animal body, are evaporated and got rid of. Turn-up beds, box-beds, and all enclosures of the kind, are perfect abominations. Slops of all kinds should be removed from sleeping-rooms as early as possible. Children even more than adults require fresh pure air during sleep, yet how often are nurseries crowded and shut close up during the night; the beds made as soon as left vacant; and the little creatures confined to the room in which they have slept, for a great part of the day. This ought not to be, nor would it be, but for the generally prevailing ignorance upon all points connected with health, and the rules for its preservation. There are few parents but would make sacrifices to give their children a change of room were they sufficiently aware of the importance of so doing; even self-interest would dictate the course, could they know how often the first cause of illness, and all its expenses, has originated in the badly-aired nursery.

It is much to be regretted that in the houses of the poor, crowding at night is so frequently compelled by circumstances; if it must be so, its evils ought to be counteracted by the means of ventilation already pointed out, and by strict cleanliness; at the same time, floors should not be washed in damp weather, and when they are washed, it should be done early enough in the day to permit of their being thoroughly dry before the room window is closed for the night. Rooms which are at all crowded at night, ought to be whitewashed at least twice a year.

The chamber of sickness requires all the provisions for health to be attended to with increased care, more especially if the illness be of an infectious character. In this case, as free ventilation with cool pure air as the case will admit—the window, if possible, being open during the day—must be continually preserved; and all superfluous furniture or clothing, of cotton or wool especially, and bed-hangings, removed; no counterpanes or quilts should be used, as they are too heavy for the patient, blankets should take their place; dirty linen must be taken away at once, and excretions—kept, as they should be, for the inspection of the medical attendant—removed to an unoccupied room, or out of doors. The zeal for cleanliness, however, must never, either in infectious disorders or not, go so far as to dictate washing the floor of an apartment occupied by the sick; a gentle sweeping with tea-leaves to prevent dust, is all that is allowable. Cooking of any kind is out of the question. If it is possible to have a second bed into which the sick person can be moved occasionally, it is a valuable resource. A thermometer to regulate the temperature of a sick room is at all times a safer guide than the sensations of individuals, and the best average temperature to be maintained is from 55° to 65° Fahr. All sources of unpleasant or teasing noise, creaking hinges or shoes, the ticking of a clock, etc., are to be obviated; if there is a mirror into which the invalid can gaze, it should be removed. Vessels, whether for food or medicine, should be carefully cleansed each time of using. The medicines ought to be kept in some sort of order in a place by themselves, never, as is frequently done, placed in the window, where they are liable to be decomposed by the action of light, or by the heat of the sun's rays. All external applications should be unmistakably marked.

Even in diseases of an infectious character, if proper ventilation and cleanliness be observed, the attendants upon the sick have comparatively little to fear, though at the same time, every additional precautionary measure is to be adopted. Fumigations of tobacco, burning nitre, etc., are worse than useless; they give no real protection, and only deteriorate the air, or irritate the patient. Chlorine is one of the most effectual disinfectants to be employed, and by far the best preparation for the purpose is Collins' patent disinfecting powder, which requires no trouble, and maintains a continued, sufficiently effective, and not unpleasant chlorinated atmosphere in the apartment. Carbolic acid, 1 ounce to a gallon of water, and the bromo-chloralum manufactured by Tilden, are excellent disinfectants for this purpose. Vinegar, sprinkled or burned, has no power of protecting against, or of destroying the power of morbid emanations; but it is sometimes grateful to the patient, and pleasant to the attendants. Darkening a sick-room is too often resorted to, and

should not be done except by order of the medical attendant, for some special reason. Bed and body linen of course require to be frequently changed, in fevers, etc., once in twenty-four hours if possible, that is, if it can be done without exhausting the patient.

Those in attendance upon the sick, especially of an infectious disorder, should live sufficiently well, and, if accustomed to it, take a moderate proportion of wine or malt liquor; but not, as many do, have recourse to extra potations of brandy, which can afford no power of resistance, but only render the body more susceptible of noxious influence, when the depression which follows excess supervenes. A sitter-up should have tea or coffee during the night, and those who have to go about a fever-patient in the morning, ought previously to take a cup of one or other of those beverages. The breath and exhalations generally of any one laboring under an infectious disorder are to be avoided; and as much as can be done, any continued position, towards which a draught of air may be directed from the patient. With these precautions, those whose duty calls them to attend upon the sick, ought never to shrink from that duty, but face it with cheerfulness and trustful reliance upon Providence.

There are now so many inventions for promoting the comfort and convenience of the sick, that it would be impossible to enumerate them here, but a few of the most useful requisites may be suggested. A measure, marked for spoonfuls, to be used instead of metal spoons, which vary in size and are apt to be stained. A drop or minim measure; a piece of water-proof sheeting, either of gutta-percha or some one of the numerous materials now manufactured; a fan; a night-light, either simple or made to keep water hot; an air or water-cushion, of water-proof material; either as a cushion or as a bed-rest, adapted to any elevation. A "sick-feeder" or half-covered cup, with a spout and handle, is most useful for giving either liquid aliment or medicine in severe illness, when it is desirable that a patient's head should not be elevated. After illness of any kind, the chamber which has been used ought to undergo a thorough cleansing; after fever or other infectious disorder, everything should be individually cleaned. The room itself ought to be papered, painted, or whitewashed afresh, the bed-frame taken down, scoured, and with other furniture exposed to the open air for some days; feather-beds and hair mattresses taken to pieces, their coverings washed, their contents re-baked or funigated; whatever can be washed, should be. Expose articles which have been about the sick freely to the action of air or water, and they will speedily get rid of the noxious particles,—“fomites,” as they are called. Shut them up, or bundle them together, and they will retain the power of propagating disease for months, it may be for years.

The crowded rooms of the poor have been mentioned—bad enough in health, they become ten times worse in sickness, and this is chiefly felt in country districts. In towns, a person seized with an infectious disorder, if accommodation and means at home are insufficient, has the hospital as a resource, in the country he has not; the consequence is, that to their own detriment and that of others, the sick are compelled to be lodged in the crowded family dwelling, with every chance of the disease spreading through the house or village—the case is continually occurring. It might easily be prevented, by providing some isolated cottage in a healthy situation, properly *laid out* and furnished for the reception of the sick, with accommodation for a wife or a mother when nursing the invalid. Such a small village hospital, whether for the reception of those afflicted with infectious disease, or indeed any severe disease, would be most invaluable to all, and might be maintained for the use of a small surrounding district at trifling expense. (See AIR, VENTILATION, DISINFECTANTS, SICK-ROOM, HOUSES, BEDS, SANITARY SCIENCE, HEALTH, DAMP, SLEEP, HOSPITALS.)

BEDFELLOW. (See ACQUIRED DISEASES.)

BEDS, *bedz*, spring beds are a decided improvement upon those of feathers, hair, etc., inasmuch as when the body is moved they at once regain their position, and do not allow the same extent of the accumulation of the secretions of the body, of heat and moisture. They also save a great deal of hard work to domestic servants, as they do not require to be shaken up and tumbled about every morning, but always retain the same elasticity.

The invalid bed lift is very valuable in some severe cases, where it is impossible to change the patient's bed without great pain and trouble.

Iron beds, without curtains of any kind, are by far the most healthy for general use, and for public institutions no other kind will do.

In cases where there is great difficulty of breathing, so that the patient is forced to sit up in bed, a bed-rest will be found of great value. One should be obtained that can be moved or inclined at different angles according to the wish of the patient, so as to cause as little inconvenience as possible in changing his posture. Bedsteads for invalids can be obtained with a part of the sacking made to rise at the head so as to support the back. This may be elevated to any desirable angle by means of two upright pieces with holes and pins through the bed-frame. While in this position the feet of the patient should always be supported by a foot-board, to prevent him slipping down in bed.

All who have waited much upon the sick must be painfully aware, that with even the greatest precaution, it is sometimes impossible to prevent the formation of bed-sores. To obviate this, air-beds, water-

beds, water-pillows, vulcanized India-rubber beds, etc., have been invented. (See AIR-BEDS).

BED-SORES, *bed'-sörz*, are sores which form on different parts of the body of a person when long confined to bed, particularly if unable to shift his posture occasionally. They are especially apt to occur during fevers and other diseases in which the patient is much debilitated. The parts first appear red and inflamed, then rapidly ulcerate or slough. In order to prevent this, means should be taken to ease the parts most likely to be affected, by means of small pillows, cushions, and the like, and to shift the patient frequently. The hydrostatic or water-bed, now much recommended for invalids, serves to prevent the weight of the body from pressing too much on any one part. A simple dressing of ointment of resin is the best application to the sores. Bed-sores may be prevented by frequently washing the parts with a strong decoction of white oak bark, or what is still better, sponging them several times a day with tincture of Tolu. (See BED, BEDS.)

BED-WETTING, *bed'-wet-ing*. A common trouble among children is their inability to retain their water during sleep. It arises from a diversity of causes, sometimes from disease of the urinary organs, but often from too free use of liquids during the evening, from exposure to cold, and from not voiding the urine the last thing at night. The presence of worms is also a frequent cause of this troublesome affection. The common-sense treatment consists in guarding against the above causes. The following prescription will also be found useful in many cases :

Take of Tincture of nux vomica.....	Thirty drops.
Essence of ginger.....	Thirty drops.
Syrup and water, of each.....	One ounce.— <i>Mix.</i>

Give 1 teaspoonful at night. This is for a child from five to ten years of age. (See URINE.)

BEEF, *beef*, the most strongly nutritious animal flesh in use, is not quite so digestible and light as mutton for those of weak digestion; but this depends in some degree upon the part selected. A slice from a coarse-grained shoulder of mutton may be much more difficult of digestion than one from the under side of a sirloin. As a general rule, however, mutton is preferable for the dyspeptic and the convalescent. (See BEEF-TEA, FOOD.)

BEEF'S GALL OR BILE. (See OX-GALL.)

BEEF-TEA. Take 2 pounds of very fresh beef, remove every bit of fat, and cut it up into small pieces about the size of the top of the finger, scoring it to let out all the gravy; place it in a jar with $\frac{1}{2}$ a saltspoonful of salt, $\frac{1}{2}$ a clove, 4 peppercorns, and $1\frac{1}{2}$ pints of cold water. Tie over

the top of the jar, and immerse it in a saucepan of water, allowing it to boil gently for two hours and a half. Strain, and in order to remove any particle of fat that may be on the surface, pass silver paper, or a piece of stale crumb of bread, over it. If preferred, boiled rice or tapioca may be added.

We also give below Prof. Liebig's method: This celebrated chemist directs a pound of lean beef, freed from fat and bone, to be chopped small, as for mince meat, and to be "uniformly mixed with its own weight of cold water, slowly heated to boiling, and the liquid, after boiling briskly for a minute or two," to be "strained through a towel." A little salt, or any allowable seasoning may be added. Beef-tea is a most important article in sick cookery, but is very often badly made, and much too weak for the purposes for which it is ordered. In diseases of exhaustion, or in the last stage of fever, strong beef-tea is perhaps the form of nourishment most easily assimilated, which is adapted to afford powerful support to the system (See BEEF, FOOD, COOKERY FOR THE SICK, OSMAZOME.)

BEER. (See ALE, PORTER.)

BEES' STINGS. (See BITES AND STINGS.)

BEESWAX, *beez'-waks*. This substance has been investigated by numerous chemists. It appears, from the researches of Brodie, that wax is a true animal secretion; for bees fed on sugar only continue to deposit it in large quantities. At ordinary temperatures, beeswax is a tough, solid, yellow substance, having a specific gravity of 0.96, and fusing at about 145°. Wax consists chemically of myricine, insoluble in boiling alcohol; cerine, a crystalline substance, dissolved by boiling alcohol; and ceroleine, which is dissolved in cold alcohol. (See CERA.)

BEET, *beet*, [Lat. *beta*]. Beet-root contains so large a quantity of sugar, as to make its extraction an object of commerce. The sweetening powers are less than those of cane-sugar. The root itself, when boiled, is easy of digestion. Its beautiful coloring matter might often be substituted for more deleterious substances.

BEGGAR TICK. (See BIDENS BIPINNATA.)

BELA. (See BAEL.)

BELLADONNA. (See ATROPA BELLADONNA.)

BELLY OR ABDOMEN. (See ABDOMEN.)

BENGAL QUINCE. (See ÆGLE MARMELOS.)

BENJAMIN-BUSH. (See BENZOIN ODORIFERUM.)

BENJAMIN, GUM. (See BENZOIN.)

BENZINE. (See BENZOLE.)

BENZOIC ACID, *ben-zo'-ik*, ($C_{14}H_5O_3HO$).—An acid obtained from gum-benzoin. It is also found in balsams of Tolu and Peru, in storax,

and in the urine of herbivorous animals. It is easily prepared by sublimation. Benzoic acid forms white glistening needles, having an agreeable aromatic odor, and a hot, bitter taste. It melts at 248° , sublimes at 293° , and boils at 462° . Its vapor may be kindled, burning with a smoky flame. It dissolves in 200 parts of cold water and 25 of hot. It is readily soluble in ether and alcohol. It combines with the alkalies, earths, and metallic oxides, forming benzoates. It forms sulpho-, nitro-, and chloro-benzoic acids, by the substitution of atoms of sulphuric acid, peroxide of nitrogen, and chlorine, for atoms of hydrogen. Its other compounds are too numerous and unimportant for mention here. Benzoic acid is stimulant and expectorant, and occasionally given for coughs and shortness of breath, in doses of 10 to 15 grains, but is chiefly used as an ingredient in paregoric (*Tinctura camphoræ composita*.) The other preparations in which it exists are *Ammoniæ benzoas*, and *Tinctura opii ammoniata*.

BENZOIN ODORIFERUM, *ben-zoin' o-dur-if'-e-rum*, commonly called spice-wood, fever-bush, wild allspice, and Benjamin-bush. It belongs to the Nat. order *Lauraceæ*, and is a shrub growing from 5 to 12 feet high. It grows in shady places in the United States and Canada. Its properties are aromatic, tonic, and stimulant; it has been very successfully employed in the treatment of ague, and the typhoid form of fever, and is useful as a refrigerant, for allaying excessive heat and uneasiness. It is used warm to produce diaphoresis. Dose of fluid extract, $\frac{1}{4}$ to 1 teaspoonful. The decoction may be drunk freely. (See DECOCTION.)

BENZOIN, OR GUM-BENJAMIN, *ben-zoin'*, a fragrant balsam obtained from the Benjamin-tree. (See STYRAX.) It exudes from incisions in the bark, and soon hardens by exposure to the air. Two kinds are distinguished in commerce by the names of *Siam* and *Sumatra benzoin*. The former is most esteemed in this country. Benzoin is used in medicine as a stimulant expectorant. It is, however, principally employed for the preparation of *benzoic acid*, and as an ingredient in the incense used in the Greek and Roman Catholic churches. It is also an ingredient in fumigating pastiles and court plaster. The agreeable odor produced by burning benzoin is due to the evolution of the vapor of benzoic acid. (See BENZOIC ACID.)

BENZOLE, *ben'-zole* ($C_{12}H_6$.) A hypocarbon of considerable importance, derived from coal-tar. It was first obtained by Faraday from a liquid produced by compressing oil-gas, and was called by him *bicarburetted hydrogen*. Mitscherlich afterwards obtained it from benzoic acid; and, latterly, Mansfield has procured it in large quantities from coal-naphtha and gas-liquor. It is a limpid, volatile, colorless, and mobile liquid, with a peculiar odor, having a specific gravity of 0.85,

and boiling at 177° . Exposed to a temperature of 32° , it condenses into crystalline masses, which melt at 40° . It is insoluble in water, but dissolves freely in alcohol, ether, and oil of turpentine. It is greatly used in the arts, being an excellent solvent for India-rubber, gutta-percha, wax, camphor, and fats. The property of dissolving fats and oils, added to its great volatility, renders it very useful for removing grease-stains from articles of dress. It is sold for this purpose under the name of "benzine collas," at about three or four times its real value. Benzole is also known as *benzine* and *phene*.

BERBERIS, *ber'-ber-is*, in Botany, the typical genus of the Nat. order *Berberidaceæ*, consisting of numerous species, found in temperate climates in most parts, except Australia. These are shrubs, often spiny, with yellow flowers and acid berries. The three whorls of organs in the flower are each made up of six parts: thus, there are six sepals in the calyx, six petals in the corolla, and six stamens. The latter are remarkable for their irritability; for if touched at the base by an insect, or even with the point of a pin, they start up from their natural reclining position, and close upon the pistil. The most interesting species is *B. vulgaris*, the common barberry, which is usually a bush from four to six feet high, but which in Italy sometimes becomes as large as a plum-tree. It is a very ornamental plant, especially when covered with fruit. The berries are of an oval shape, and, when ripe, generally of a bright red color, but sometimes whitish, yellow, or almost black. They are very acid, and not fit to be eaten raw; but when boiled with sugar, they form a most refreshing preserve. The bark and stem are very astringent, and yield a bright yellow dye. Of the numerous species of *Berberis* which are cultivated as ornamental shrubs, the finest is undoubtedly *B. aristata*, the bristle-leaved barberry. This is a hardy evergreen, producing excellent fruit. It is a native of Nepaul, and was introduced into this country about fifty years ago. (See BERBERIS VULGARIS, BERBERIS AQUIFOLIUM.)

BERBERIS AQUIFOLIUM, *ber'-ber-is ak-we-fo'-le-um*. This species is found in California. Dr. Bundy, of that State, first discovered the properties of the drug, which he described in the "Medical Journal." He says, "Berberis aquifolium appears to be a powerful alterative, with strong tonic properties, a combination rendering it a sovereign remedy in syphilitic and scrofulous diseases, cancers, tubercular affections, rheumatism, etc." Dr. Bundy relates several cures of syphilis and salt rheum, and gives his opinion of the effects of the drug as follows: "Its power as an alterative is certainly marvellous, and not only as an alterative, but as a tonic also. The root is the part used. As a general tonic, I know of nothing that can excel it, and I find it also to be an

effective anti-periodic. Combining, as it does, its great alterative properties with its fine tonic power, its great value as an alterative is increased, for where an alterative is desirable, a tonic is always needed. Since learning of this drug's great anti-syphilitic power, I prescribe but a very little of the iodides, from the fact of this so far outdoing them in syphilis. I do not care what the disordered state of the blood may be, requiring an alterative or tonic, you will find in this the power of renovation and innervation, that will give perfect satisfaction, and it will bring the answer faithfully.' Dose of the fluid extract, 15 to 30 drops, three or four times daily.

BERBERIS VULGARIS, *ber'-be-ris vul-ga'-ris*, commonly called barberry or berberry, is tonic and laxative. It is used in cases where tonics are indicated, as in jaundice, dysentery, chronic diarrhœa, and cholera infantum. It is serviceable as a wash or gargle in aphthous sore mouth, and in ophthalmia. It is said to act like rhubarb, and with equal promptness and activity. Dose of the fluid extract, $\frac{1}{4}$ to 1 teaspoonful.

BARBERRY, OR BARBERRY. (See BERBERIS, BERBERIS VULGARIS.)

BERGAMOT, OIL OR ESSENCE OF, *ber'-ga-mot*, a fragrant essential oil, obtained by expression or distillation from the rind of the Bergamot orange. It is extensively employed in perfumery for scenting pomades, and as an ingredient in most compound essences, such as eau de Cologne, eau de millefleurs, and Jockey-club bouquet.

BERIBERI, *ber'-e-ber-e*, a disease common in many parts of Ceylon and other parts of the East Indies, characterized by difficulty in breathing, weakness, stiffness, and a sensation of numbness in the lower limbs, a bloated appearance of the face, and dropsical swelling of the whole body. The disease commonly comes on slowly, and terminates in the course of three or four weeks; but sometimes it attacks suddenly, and destroys the patient in from six to thirty hours. The causes of this disease are not well understood. It is generally supposed to arise from exposure to cold, damp air, and the want of stimulating and nourishing diet. Great difference also exists as to the best mode of treating this disease: some regard it as a disease of debility, and consequently have recourse to stimulants; others consider it to arise from increased internal action, and resort to blood-letting, purgatives, diuretics, etc. This latter mode appears to be that most generally recommended. The chronic paralytic affection termed *barbiers*, also common in India, was, until recently, confounded with this disease. Barbiers is a disease of nervous debility, and therefore to be treated with tonics, cordials, and nutritive diet. It commences with weakness, trembling, and a pricking

sensation of the legs, thighs, and arms. Loss of appetite, indigestion, and emaciation soon follow, and at length, if the disease continues, the muscles become paralytic.

BETEL, *be'-tl*, the name usually given to a narcotic masticatory, used by the Malays and other Eastern races. It is prepared by rolling up long pieces of the betel-nut (see ARECA) in the leaves of the betel-pepper, previously dusted on one side with the quicklime of calcined shells. When chewed, the betel promotes the flow of saliva, and lessens the perspiration from the skin. It stains the mouth, teeth, and lips red, an effect which is considered ornamental by the natives. It imparts an agreeable odor to the breath, and is supposed to fasten the teeth, cleanse the gums, and cool the mouth. The juice is generally swallowed. To one not accustomed to betel-chewing, the nut is powerfully astringent in the mouth and throat, while the quicklime often removes the skin and deadens the sense of taste. After a while it causes great giddiness. On those accustomed to use it, however, the betel produces weak, but continuous and sustained, exhilarating effects; and that these are of a most agreeable kind may be inferred from the very extended area over which the practice of betel-chewing prevails. Prof. Johnston estimates that betel is chewed by probably not less than fifty millions of men.

BETHROOT. (See TRILLIUM PENDULUM.)

BETULA, *bet'-u-lä*, in Botany, the birch, a genus of trees or shrubs belonging to the Nat. order *Betulaceæ*. With the exception of *B. ant-arctica*, an evergreen shrub found in Terra del Fuego, all the species flourish beyond the tropic in the northern hemisphere. *B. alba*, the common birch, is one of the most beautiful of our forest trees, and is found in most of the northern parts of America, Europe, and Asia. The leaves are small, of an ovate-triangular shape, and doubly serrated. The bark is smooth and silvery white, and the outer layers are thrown off as the trunk increases in diameter. This tree yields useful timber for turnery, etc., and the bark is valuable as a dye-stuff. The outer layer yields an oil which is much prized by the tanner; it is this which gives Russia leather its peculiar odor. In the spring the sap of the birch contains much sugar, and forms, when fresh, an agreeable beverage; when fermented, it constitutes what is called birch wine, a liquor employed medicinally in domestic practice for stone and gravel.

BEVERAGE, *bev'-ur-aj* [Ital. *beveraggio*], a term applied to all liquids which are used either to quench the thirst, stimulate the stomach, or cause a healthy internal action. There are various kinds of beverages, such as cooling, refreshing, tonic, stimulating, etc.

BI, *bi* [Lat. *bis*, twice], a syllable signifying twice or double, and used as a prefix in certain compound names; as *biceps*, two-headed;

bicuspis, two-pointed; *bicarbonate*, a carbonate with two equivalents of carbonate to one of base.

BICARBONATE OF POTASH. (See POTASH.)

BICARBONATE OF SODA. (See SODA.)

BICUSPIDS, OR BICUSPIDATI, *bi-cus'-pidz* [Lat. *bis*, and *cuspis*, a spear], in Anatomy, is applied to the two first pairs of molar teeth in each jaw, from their having two spearlike tubercles.

BIDENS BIPINNATA, *bi'-denz bi-pin-na'-ta*, Spanish Needles, an annual plant belonging to the Nat. order *Asteraceæ*, found growing from one to four feet high, on dry soils, throughout the Middle States, There are two other varieties, *B. Frondosa*, or beggar tick, and *B. Conuata*, or swamp beggar tick. It is an emmenagogue and expectorant, and has been successfully used in amenorrhœa, dysmenorrhœa, and other uterine derangements. An infusion of the *B. Frondosa* has been successfully used in croup. It is used also as a syrup, made with honey, and given in doses of 1 tablespoonful every ten or fifteen minutes, until vomiting ensues.

BILBERRY. (See VACCINIUM.)

BILE, *bile* [Lat. *bilis*, said to be from *bis* twice and *lis* strife, from the idea that strife or contentiousness was owing to a superabundance of bile], is a peculiar oily fluid secreted from the venous blood by the liver. It is separated from the blood of the portal vein by the primary cells of the liver, and these discharge it into small ducts which unite to form larger ones, terminating in the ductus communis choledochus, whence it is conveyed into the duodenum. It then mixes with the digested food, and performs the important office of fitting it for absorption into the system. The bile thus mixed with the elements of nutrition becomes in part also absorbed; the excrementitious portion passing out of the body with the other indigestible materials, and imparting their peculiar color to them. When digestion is not going on the bile ascends through the cystic duct to the gall-bladder, where it is stored for future use. The principal use of the bile is to separate the chyle from the chyme. It also aids in exciting the peristaltic motion of the intestines, thus causing them to evacuate their contents sooner than they would otherwise do, and hence when there is a deficiency of bile the bowels are usually very torpid. Bile differs to some extent in nature and chemical composition in different animals. Human bile is a viscid and ropy fluid, of a greenish or brownish yellow color, a disagreeable odor, and a bitter nauseous taste. When poured into water it sinks to the bottom, and does not mingle readily with it unless agitated or stirred, and then it becomes frothy like a solution of soap. According to Berzelius, its constituents are in 1,000, water 904.4, biline (with fat and coloring principles) 80,

mucus (chiefly from the gall-bladder) 3, salts 12.6. The able researches of Strecker have shown that bile is principally a combination of two peculiar resinous acids with sodium. One of these is termed cholic or glycocholic acid, a compound of cholalic or cholic acid and glycoline; the other choleic or tauro-cholic acid, a compound of cholalic acid with taurin. Cholesterin is also a constituent of healthy bile, although the proportion does not exceed 1 in 10,000, according to Berzelius. Small quantities of various fatty bodies, chlorides, phosphate, iron, and manganese also occur. Besides these substances a peculiar coloring matter is found in combination with an alkaline base, the composition of which is not settled. The bile, like the other normal secretions, is liable to alteration in its constituents in disease. The solid constituents of the bile are commonly increased in abdominal and heart diseases when the motion of the blood in the larger veins is impeded; in severe inflammatory affections again it is commonly found to be poor in solid constituents. When, owing to some functional derangement, the bile is absorbed into the blood, and carried through the system, it imparts a yellow tint to the skin, producing the disease known as jaundice (which see). When from a torpid or diseased state of the liver the process of secretion is imperfectly carried on the person is said to be bilious. The secretion of bile is increased by rich, abundant, good diet, alcoholic liquor, heat, indolence, mercury, rhubarb, taraxacum, etc.; and is diminished by light spare diet, active exercise, early rising, temperate atmosphere, etc. (See LIVER, BILIOUSNESS; BILE, PETTENKOFER'S TEST FOR; BILIARY DISORDERS, BILIOUS CHOLERA, BILIOUS HEADACHE.)

BILE, PETTENKOFER'S TEST FOR, *bile pet-ten-ko'-furz*. The suspected fluid, or an alcoholic solution of the solid is placed in a test tube, and $\frac{2}{3}$ the volume of pure sulphuric acid added by drops. When the mixture is cold, 2 or 3 drops of pure syrup is added, when, if choleic acid be present, the mixture assumes a violet red color. (See BILE.)

BILIARY CALCULI, *bil'-ya-re kal'-ku-li*, [Lat. *calculus*, a small stone]. These are sometimes called gall-stones, and are often found in the human gall-bladder in large quantities. They are either semi-transparent and crystalline, or strongly colored with the bile. They mostly consist of cholesterin deposited on a nucleus of phosphate of lime. (See CALCULUS, GALL-STONES.)

BILIARY DISORDERS. Biliary derangement is so frequent an ailment in civilized life, its history is so intimately connected with the general principles of health, and the prevention, or at least alleviation, of the disorder is so much under individual control, that it has special claims upon our attention.

In ordinary health there must be a certain balance maintained, between the secretion and ultimate destination of the bile, the assimilation of food, and the functions of respiration; in the excreted bile, the blood is freed from certain principles—containing a large amount of carbon—which could not be retained in it without injury to health; further, the bile, after being separated from the blood by the liver, and thrown out into the general tract of the alimentary canal, performs an important part in the function of assimilation, and lastly, a considerable proportion of the bile—without the coloring matter—is re-absorbed into the system, with the nutriment, in such a state as to fit it—or rather its carbon—for union with the oxygen which enters by the lungs, so that while heat is generated, the carbon, by taking the form of carbonic acid, is fitted for excretion by the lungs or skin. Upon these facts, hinge the causes of one at least of the most prevalent biliary disorders, that which depends upon the introduction into the system of a proportion of carbon aliment too great to be removed by the oxygen obtainable through the lungs, and which has its ordinary termination in the attacks which are termed, “bilious attacks,” “sick headaches,” “bowel complaints,” “bilious cholera,” according to the manner in which the patient is affected.

The second form of biliary disorder depends upon torpidity or inactivity of the liver itself. The third form is the reverse of the first: the gland itself may be sufficiently active, but the blood does not afford sufficient material for it to work upon, and bile is deficient. This is most frequent in children.

In addition to those affections, there is jaundice, which will be treated of in its proper place.

The first form of biliary disorder, that dependent upon the accumulation of carbon, or of the elements of bile in the blood, must evidently be owing to one of the following causes, or a combination of them: either too much food, especially of a highly carbonized character, such as fats, oils, sugars, etc., is habitually consumed, or the habits are too physically inactive to keep the functions of respiration, animal heat, and motor change, and circulation, in healthy action; or the external atmosphere is so temporarily or permanently rarefied by heat, that the individual cannot obtain the full supply of oxygen in respiration; lastly, the excretory functions of the skin may be impeded. Now, although it is unquestionable that some individuals have a much greater tendency to biliary disorders than others, it is also unquestionable, that all have it in their power, in a great degree, if not entirely, to control or obviate that tendency, by attention to, and practical application of the above principles. In those who suffer habitually from sick

headaches—which depend generally upon the presence of the bile in the stomach—and from other forms of biliary disorder common to this country, there is generally traceable great error in diet; fats, melted butter, pastry, meat, malt liquors or wine, and other highly carbonized articles of diet, are taken too freely, or at least, are too regularly indulged in, whilst at the same time very little active exercise is taken; the blood becomes overloaded with carbon; languor, sleepiness, headaches, giddiness, loss of appetite, furred tongue, depression of spirits, are the consequences, and continue, until at last the system is relieved, wholly or partially, by an excessive excretion of vitiated bile, which passes off either by vomiting or purging.

That deficient exercise has much to do with the formation of such a state of system, is evident from the greater prevalence of such attacks among females, who take little exercise, than among men; and, indeed, they would be still more prevalent among the former, were it not for the monthly relief. Habitual neglect of the skin, also, by impeding the excretion of carbonic acid from its extensive surface, undoubtedly assists the evil. Again, we have bilious attacks, more especially those known by the name of bilious cholera, prevalent among the community generally—but at particular periods of the year—that is, in summer or autumn, during or immediately succeeding a prevailing high temperature, and to this high temperature must we look for the cause; for whilst as a general rule, habits have not been changed, people have been—in consequence of the rarefied atmosphere—inhalng a less proportion of oxygen than usual. Liebig calculates the difference at one-eighth between winter and summer in Germany. Here we have another traceable and universally acting cause, permitting the accumulation of carbon in the blood, and one which is likewise found to operate upon Americans and Europeans especially, who, in tropical climates, adhere too nearly to the habits of comparatively full living, admissible in colder climates.

Prevention.—From what has now been said, it is evident how much the avoidance of biliary disorder is under individual control; the question is in reality not one of medicine, but of diet and regimen; medicine certainly may be required, but not by any means to the extent it is often used. Those who are habitually liable to biliary disorder ought most strictly to regulate the diet; fats of all kinds—except, in some cases,—must be avoided; butter either entirely avoided, or used in very small proportion, and never when melted; animal food may be taken in moderation, but should never be consumed at night; much sugar, strong tea or coffee, malt liquor, and the heavier wines, such as port, or sweet wines, are all bad. In addition to plain meat, bread, well-boiled vegetables, farinaceous preparations, and fruits, ripe or cooked, are the

best articles of diet. Exercise regularly in the open air *must* be taken, and the skin kept clear and in an active state. If the bowels are confined, a pint of warm water, used as an injection, will be a most suitable aperient, or 1 or 2 of the compound rhubarb and blue pills may be taken; it is much better, however, not to trust to medicine. When from any cause, the languor, sleepiness, furred tongue, etc., give notice of an impending bilious attack, 5 or 6 grains of blue pill should be taken, or $\frac{1}{4}$ of a grain of podophyllin, and followed by a black draught, or dose of infusion of senna, or of castor-oil, in the morning. Having thus cleared the system, it is better to trust to diet and regimen, than to a repetition of the dose as a corrective of indulgence. (See AIR, EXERCISE, DIET, HEALTH, BATHS, ABLUTION, MINERAL WATERS, BILIOUS CHOLERA, BILIOUS HEADACHE, BILE, BILIOUSNESS, JAUNDICE, BLUE PILL, MERCURY, PODOPHYLLUM PELTATUM.)

BILIARY DUCTS, in Anatomy, are those ducts or canals which convey the bile from the liver to the duodenum. (See LIVER.)

BILIOUS CHOLERA, OR CHOLERA MORBUS, *bil'-yus kol'-e-ra*. When, during prevailing high temperature, an individual is threatened with an attack of bilious cholera, or, as it is frequently called, when unattended with vomiting, "bowel complaint," there is for some time previously, much languor and sleepiness, especially after meals, headache, pain between the shoulders, furred tongue, loss of appetite, fullness in the region of the stomach, and high-colored urine. The complexion, perhaps, is dusky. When such symptoms show themselves, one or two doses of calomel or blue pill—4 grains of the former, 6 or 8 of the latter—is nearly all that is required for their removal.

Podophyllin is perhaps more efficient than even the mercurials, in relieving the symptoms of overloaded liver. The ordinary dose for an adult is from $\frac{1}{4}$ to $\frac{1}{3}$ of a grain. 2 grains of compound rhubarb pill, 1 grain of extract of henbane, and $\frac{1}{4}$ of a grain of podophyllin, form a pill that may be taken with advantage by most persons.

The mercurial may be followed or not, as required, by a dose of senna-tea, or castor-oil. The diet of course ought to be restricted. If there is any tendency to heat or feverishness, 10 grains of carbonate of potash, along with a teaspoonful of sweet spirit of nitre, taken in a wine-glassful of water, or of infusion of dandelion, twice a day, will relieve.

If the symptoms above-mentioned are neglected, the acute bilious attack, usually known as bilious cholera, is the winding up; it is ushered in by a sensation of chilliness, giddiness or headache, bitter taste in the mouth, and nausea in most cases, quickly succeeded by vomiting of bile, and griping and purging. An attack of this kind may pass off lightly, leaving the patient better than for some time previously, or it may be

so severe as to threaten life. In the latter case, the vomiting is incessant, the purging profuse, painful, and exhausting, and the motions, which were at first feculent and bilious, become light-colored, like thin gruel; there is much thirst, cold and blue skin, covered with cold perspiration, cramps, much depression, the pulse imperceptible or nearly so, and perhaps the secretion of urine suppressed. In short, it is difficult to distinguish the attack from one of the malignant Asiatic cholera. Between the severe form and the mildest, the disease occurs in every degree of severity; if severe, the attack is always painful and alarming, and may be dangerous; and in the country, or at a distance from medical aid, requires to be quickly dealt with. The first thing to be kept in mind is, that the manifestations are not the disease; that the actual outbreak is only an effort of nature to free the system of morbid matter; that we may guide, control, and stop, if matters go too fast, but must not thwart. A mild attack of bilious cholera is better left alone, as far as medicine is concerned, diluent drinks, such as barley or rice-water, etc., being given to dilute the bile, which is generally acrid, and to assist its passage from the system. In a severer attack, when pain, purging, and other symptoms become urgent, it is time to interfere. The patient, if not in bed—which, however, frequently happens, from the attacks coming on in the night—should go there at once, and hot applications, bran and such like, used to the bowels to relieve the pain; or more extensively to the limbs, back, etc., if there is much coldness or cramp. A mustard plaster, the size of the hand, to the pit of the stomach will sometimes abate the sickness—general friction is serviceable. 20 to 25 drops of laudanum should be given to allay pain, and moderate purging, and repeated two or three, or even more times in succession every half-hour till some effect is produced—if the first dose comes up, the second should be given at once; if that does not stay, then the third. If the stomach will not retain liquid of any kind, if it is to be procured, the powder of opium should be given in a 1 grain pill; and if it remains, the dose repeated, if required, in an hour, or a half-dose given. Sometimes the vomiting is so obstinate that no ordinary means will stop it. Many families in the country now keep creosote for toothache; in such a case as the above, a single drop rubbed up with a little gum or thick barley-water might be tried, and repeated once: or 4 to 8 drops of chloroform in a little sugar and water, or brandy and water, might have the desired effect. Two tablespoonful doses of the ordinary chalk mixture, either with or without the laudanum, or $\frac{1}{2}$ dram doses of aromatic confection will be useful when purging continues. In addition to these means, diluent demulcent drinks, barley and rice-water, with isinglass or gelatine dissolved in them, are to be freely taken. In

case of extreme depression, stimulants, hot brandy and water, etc., are to be administered. The attack of bilious cholera is so sudden and its course so rapid, that if there is any great distance to send for medical assistance, there will be full time for the employment of the above means, not only to the relief, but also to the safety of the patient. After the attack has somewhat subsided, keeping in mind that the tendency of it is to clear the system, the bowels must not be allowed to get confined, but kept slightly relaxed; if requisite, 1 dessert-spoonful of castor-oil, with 6 drops of laudanum, or a small dose of rhubarb and magnesia, with or without laudanum, may be given. The diet should be chiefly of a diluent character for a short time, but nourishing. Should any of the symptoms which preceded the attack, such as languor, fullness about the region of the liver, pain between the shoulders, furred tongue, etc., continue, a few doses of the compound rhubarb and blue pill will be advisable; if the stomach remains weak, from 5 to 10 grains of carbonate of potash in a wine-glassful of infusion of calumba or gentian will be found useful, and if the tongue is perfectly clean and there is debility, 1 grain of quinine in $\frac{1}{2}$ glass of sherry twice a day. (See BILE, BILIARY DISORDERS, BILIOUSNESS, AUTUMNAL COMPLAINTS; CHOLERA, ASIATIC; BLUE PILL, MERCURY, *PODOPHYLLUM PELTATUM*.)

BILIOUS COLIC. (See COLIC.)

BILIOUS FEVER. (See REMITTENT FEVER.)

BILIOUS HEADACHE. That form of headache to which the term bilious headache is applied, though often connected with alteration of the hepatic function, is also frequently dependent on disorder of the stomach. It is characterized by a dull, heavy feeling, rather than of acute pain, in the head, chiefly in the forehead, over the eyes, and in the eyes themselves. These organs, if pressed upon or turned upwards, are found to be very painful. There is often giddiness, always great languor and depression, and a tendency to drowsiness and sleep, which, though deep, is not refreshing. The conjunctivæ, or white portions of the eyes, are sometimes slightly jaundiced. There is very generally nausea and sickness; and after continuing for a longer or shorter time, the attack is not uncommonly terminated by vomiting of green bile, often in considerable quantity. The bowels, in such circumstances, have most probably been irregular for some days previously, perhaps obstinately confined.

Many persons suffer from frequently recurring attacks of bilious headache; while others, by a careful attention to diet and regimen, contrive to ward them off. Those who are apt to be thus affected should exercise great caution in the matter of food. All rich articles should be avoided—such are by no means badly named bilious; nor should less

care be exercised in regard to what is chosen for drink. Bilious subjects must learn to avoid highly dressed meat—stews and such like, pastry, and malt liquors. Plainly dressed and well-cooked meat, and not much of it; and farinaceous food should constitute the diet. As to tea and coffee, they sometimes disagree with such persons, and if so, milk or cocoa may be substituted. The bowels must be carefully regulated. It is surprising how much may be done in this way without having recourse to medicine. By due attention to diet and regimen, the healthy action of the alimentary canal may often be maintained.

For the relief of the headache, however, a dose of laxative medicine will generally be found indispensable; let it be of salts, or salts with senna, or of compound rhubarb (Dr. Gregory's) powder, or a dessert-spoonful of effervescent citrate of magnesia; let cold be applied over the forehead; and, while the headache lasts in a severe form, let the patient practice abstinence. From 15 to 30 grains of powdered guarana, or from 1 to 3 teaspoonfuls of the elixir of guarana, will frequently give prompt relief. When the headache has departed, if appetite speedily returns, as it sometimes does in a keen degree, let there be indulgence to a limited extent, and, for a time, only in what is simple and of easy digestion. (See BILIARY DISORDERS, BILIOUSNESS, BILE, EXERCISE, DIET, BATHS, MINERAL WATERS, HEALTH, AIR.)

BILIOUSNESS, *bil-yus-nes*, a state of biliary disorder, generally connected with stomach derangement, which is not always the consequence of excess of aliment, but may even arise from the reverse, and which requires the aid of medicine for its removal; the liver is torpid, the blood is insufficiently freed from its superfluous carbon, and in addition to impaired digestion, the individual suffers from the train of symptoms previously enumerated as attendant upon the first form of biliary disorder, mental and physical depression being the most prominent. (See BILIARY DISORDERS.) The bowels are confined, and the motions inclined to be light or chalky, at other times almost black. There is pain between the shoulders, and sensation of fullness in the stomach. When such a train of symptoms occurs, it is better to take proper medical advice; if this cannot be done, in order to relieve, a few grains of blue pill, or gray powder, or $\frac{1}{4}$ of a grain of podophyllin, may be given every night, or every other night, each to be followed by a moderate dose of castor-oil, or infusion of senna in the morning. At first, the infusion of taraxacum, with from 5 to 10 grains of carbonate of potash, and, if the stomach is weak, a teaspoonful of tincture of calumba, taken twice a day, will be of much service. The diet should be nourishing and easy of digestion—such as plain meat, potato and light puddings—but pastry, cheese, and oily preparations of all kinds

should be avoided. In cases of debility, wine, malt liquor, or a little weak brandy or whisky and water, whichever generally agrees best, may be taken medicinally in moderation. Daily exercise to the extent of slight fatigue, relaxation from business, cheerful company, early hours, and attention to the state of the skin by means of the tepid bath or sponging, are all assistant means, and will, even of themselves, be sufficient to remove slight attacks. Where the bowels are obstinate, injections of tepid water are especially useful, and preferable to the continual use of purgatives, which weaken the digestive power of the stomach. When the tongue is tolerably clear, and debility of the stomach, or of the system generally, remains, 20 drops of dilute nitric acid may be taken with advantage twice a day, either in water or in infusion of taraxacum, with or without the addition of a tonic bitter.

It is important to have a clear distinction in the mind between the two conditions treated of under the article BILIARY DISORDER. In the former, that which precedes the attack of bilious cholera, the liver fails because there is more given it to perform than it can do, even in its most healthy state; in the latter, the liver itself is incapable of doing the work it ought, to maintain a healthy condition of body. In the former case, reduction of diet is evidently the most common-sense prevention and cure; in the latter, the organ must be brought up to its work; and made, if possible, to do its part in the assimilation of sufficient nutriment for health. The diet is to be regulated, not diminished, the general functions kept active, and especially the nervous system, by moderate, exhilarating exercise, both of mind and body, is to be maintained in such a state of regular tonicity, as will enable it to impart that due stimulation—which is so much wanted in these cases—to every function connected with assimilation. When cases of chronic biliary disorder present feverish symptoms, the mercurial at night, and the aperient in the morning are still to be used, and also the potash and taraxacum, but without the bitter; animal food and stimulants are to be strictly forbidden, and milk and farinaceous diet substituted; the tepid bath should be used, and also injections.

Although such general directions as will be found useful in the treatment of chronic biliary disorder have been given, it is not recommended that home medicine should be resorted to when medical assistance is within reach. Much certainly may be done by judicious management, but it is probable that efficient medical advice will save both time and suffering.

In children, particularly those of fair complexion, deficiency of biliary secretion is frequently evidenced by the irregular action of the bowels, and light-colored chalky motions. It is of course desirable to

correct this, but it must not be attempted by the “gray powders,” so usually resorted to. They will, undoubtedly, for a time improve the appearance of the motions by causing an increased flow of bile, but this is obtained at the expense of the system, which does not appear able to furnish sufficient material for the secretion—in a few days the motions are as deficient in bile as ever. Such a condition can only be permanently corrected by a good allowance of animal food, and general tonic treatment, iron being especially requisite; a few grains of gray powder, however, being given once or twice a week. (See EXERCISE, AIR, DIET, BATHS, HEALTH, BILIARY DISORDERS, BILE, BILIOUS HEADACHE, MERCURY, BLUE PILL, PODOPHYLLUM PELTATUM, MINERAL WATERS.)

BILIOUS TEMPERAMENT. (See TEMPERAMENT.)

BILLS OF MORTALITY. (See MORTALITY.)

BINDER, *bind'-ur*, the bandage which is put round the abdomen of the mother in child-birth, and which forms a most important requisite, both as regards the comfort and safety of the patient. Many forms of binder are used, but none are so generally applicable, or so efficient, as a light, small table-cloth, or shawl, or square of calico, folded broad like a cravat, so that it will embrace the whole of the lower portion of the abdomen, and can be tied in a double knot at the back outside the bed-dress, where it is under the control of the attendant. The binder ought always to be put on at the commencement of labor, and tied so as just to give comfortable and moderate support to the abdomen—as the process of parturition progresses, it must be gradually tightened, and as soon as the child is born, as much so as will afford comfortable support—lastly, after the separation of the after-birth, it must be tightened again. In all these changes, the best guide is the feeling of the patient; comfortable, efficient support being all that is requisite; if tied too tightly, the binder will do mischief. The greatest benefit which results from the early application of the binder, is the prevention of faintness. The sudden emptying of the abdominal cavity which takes place when the child is expelled, is quite as frequently a cause of the above symptom, as loss of blood, the effect being in a great measure purely mechanical, and similar to what occurs when fluid is drawn from the belly in dropsy. This mechanical support given by the binder, moreover, exerts regular and regulated pressure, which must give some assistance to the efforts of the womb, and lastly, after the concluding processes of labor are over, it is no slight advantage to have a firm efficient binder in its place, instead of having to disturb the patient by its adjustment. In cases of hemorrhage or flooding, such an arrangement may be of the very highest importance. In the course of an hour or two after labor is concluded, the form of binder which has been recommended above, can be

exchanged for the ordinary broad band, fastened round the abdomen by pins, or buckles, or for one of the numerous forms of binder, shaped to fit the abdomen. One of the best forms is made of double calico, and about ten inches wide in the centre; one of the ends being rather broader than the other, so as to admit of the latter running through the slit, and both being sufficiently long to be brought round and fastened in front. (See CHILD-BED.)

BINDWEED. (See CONVULVULUS.)

BIOLOGY, *bi-ol'-o-je* [Gr. *bios*, life, and *logos*, a discourse], is the science of life. In its widest sense, it includes life in all its forms on earth, and thus comprehends within its sphere all living organized beings. In a more restricted sense, it regards man only, and in this view it may be said to correspond with Physiology. (See PHYSIOLOGY.)

BIPED, *bi'-ped* [Lat. *bis*, twice, and *pes*, *pedis*, a foot], an animal having two feet; as man, bird.

BIRCH. (See BETULA.)

BIRD-NESTS, EDIBLE, *burd'-nests ed'-e-bl*, the nests of a small Indian swallow, which are considered a delicacy, and are frequently mixed among soups. On the sea-coasts of China and in Java, at certain seasons of the year, vast numbers of these birds are seen. They construct their nests out of a substance which they find upon the shore. This gelatinous matter is supposed by Kempfer to be mollusca or sea-worms; according to M. le Poivre it is fish-spawn; and according to Linnæus a kind of medusa or jelly-fish, called by fishermen blubbers or jellies. The nests are of a hemispherical shape, and about the size of a goose's egg; and in substance bear a strong resemblance to ichthyocolla or isinglass. They are gathered by the Chinese, and sent to all parts of the world, and are esteemed a great luxury.

BIRTH. (See CHILDBED, PARTURITION.)

BIRTHWORT. (See ARISTOLOCHIA.)

BISCUITS, HOT, *bis'-kits*. Hot biscuits should be avoided by those of weak digestive powers.

BISMUTH, *biz'-muth* [Ger. *bismut*], in Chemistry, symbol Bi; atomic weight 213; specific gravity 9.8—a metal of grayish-white color, with a strong characteristic tinge of red. It is hard, brittle, and but slightly malleable. It fuses at 507°, and is obtained in fine cubical crystals by slow cooling. The peculiar property it possesses of expanding as it cools, renders its alloys of great use to the type-founder and die-sinker. It also increases the fusibility of other metals with which it is united. The remarkable alloy known as “fusible metal,” contains one equivalent of bismuth, one of lead, and two of tin; it fuses below 212°, and, by a certain admixture of cadmium, can be melted at a still

lower temperature. Bismuth is also occasionally used in cupellation, and some of its compounds are used as pigments, the hydrated oxychloride being used as a cosmetic under the name of pearl-white. Bismuth occurs in nature principally in the metallic form in the clay-slate and gneiss formations, its principal source being Schneeberg, in Saxony; it is also found in Cumberland and Cornwall, England, in California, Texas, and Utah. Bismuth is extracted from the ore by heating it in inclined cast-iron tubes with cups attached. The tubes are brought to a white heat, and the bismuth flows into the cups, which are at the lowest part of the incline. Bismuth forms two oxides—the teroxide, BiO_3 , and an acid oxide, BiO_2 , or bismuthic acid. Nitrate of bismuth is prepared by dissolving the metal in dilute nitric acid with the aid of heat, which gives rise to four-sided prisms, which are decomposed by water into an acid nitrate, which remains in solution, and a basic nitrate, the trisnitrate of bismuth, falls as a precipitate. This salt was formerly called magistery of bismuth. Bismuth occurs in nature associated with cobalt, silver, tin, and arsenic; also as an oxide in bismuth ochre; as a sulphide in bismuthine or bismuth glance; as an arsenide, a carbonate, and a silicate, in bismuth-blende. It is employed medicinally as an antispasmodic, sedative, and astringent in irritable conditions of the mucous membrane of the stomach, as in gastrodynia, chronic sickness and vomiting, diarrhœa, etc. It is also used externally as an ointment mildly stimulant in certain chronic diseases of the skin. Bismuth is purified by taking 10 ounces of the metal and 1 ounce of nitrate of potash in powder, and fusing them in a crucible, constantly stirring the mass for fifteen minutes, or until the salt has solidified into a clay over the metal; then remove the salt, add another ounce of the nitrate of potash, and repeat the process; then pour the metal into a suitable mould, and allow it to cool.

BISTOURY, *bis'-tur-e* [Fr. *bistoir*], in Surgery, is any small knife used for opening abscesses, and other surgical purposes. It may be straight or curved, convex or concave, sharp-pointed or probe-pointed, etc.

BITES AND STINGS, *bites and stingz*. Bites and stings may be divided into three kinds:—1. Those of insects. 2. Those of snakes. 3. Those of dogs and other animals.

1. *The bites and stings of insects*, such as gnats, bees, wasps, etc., need cause very little alarm, and are, generally speaking, easily cured. They are very serious, however, when they take place on some delicate part of the body, such as near the eye, or in the throat. The treatment is very simple in most cases, and consists in taking out the sting, if it is left behind, with a needle, and applying to the part a liniment made of finely-scraped chalk and olive-oil, mixed together to about the thickness

of cream. Bathing the part bitten with warm turpentine or warm vinegar is also of great use. Soda is employed; but ammonia or harts-horn—the weaker solution—is the best form of alkaline preparation; it may be used alone, or mingled with oil. If the person feels faint, he should lie quietly on his back, and take a little brandy or whiskey and water, or sal-volatile and water. When the inside of the throat is the part stung, there is great danger of violent inflammation taking place. In this case, from 8 to 12 leeches should be immediately put to the outside of the throat, and when they drop off, the part to which they have been applied should be well fomented with warm water. The inside of the throat is to be constantly gargled with salt and water. Bits of ice are to be sucked. Rubbing the face and hands well over with plain olive-oil before going to bed, will often keep gnats and mosquitoes from biting during the night. Strong scent, such as eau de Cologne, will have the same effect.

2. *Bites of snakes or serpents.*—The bite of venomous serpents is always followed by pain in the parts wounded, which extends over the limb or body; a hard swelling ensues, pale at first, soon becoming red, livid, and gangrenous. Vomiting, fainting, small and irregular pulse, convulsions, difficult breathing, a failure of the sight and intellectual powers, and cold sweats follow. Inflammation, suppuration, and gangrene in the wound, sometimes occur before death.

Treatment of the part bitten.—The great thing is to prevent the poison getting into the blood; and, if possible, to remove the whole of it at once from the body. A pocket handkerchief, a piece of tape or cord, or, in fact, of anything that is at hand, should be tied tightly round the part of the body bitten; if it be the leg or arm, immediately above the bite, and between it and the heart. The bite should then be sucked several times by any one who is near. There is no danger in this, provided the person who does it has not got the skin taken off any part of his mouth. What has been sucked into the mouth should be immediately spitted out again. But if those who are near have sufficient nerve for the operation, and a suitable instrument, they should cut out the central part bitten, and then bathe the wound for some time with warm water, to make it bleed freely. The wound should afterwards be rubbed with a stick of lunar caustic, or caustic potash, or a red-hot iron should be applied, or nitric acid, or lye boiled down to consistency of molasses should be applied, or a solution of 60 grains of lunar caustic dissolved in 1 ounce of water, should be dropped into it. The handkerchief or band should be kept on the part during the whole of the time that these means are being adopted. The wound should afterwards be covered with lint dipped in cold water. The best plan, however, to be

adopted, if it can be managed, is the following: Take a common wine-glass, and holding it upside down, put a lighted candle or spirit-lamp into it for a minute or two. This will take out the air. Then clap the glass suddenly over the bitten part, and it will become attached, and hold on to the flesh. The glass being nearly empty of air, the blood containing the poison will, in consequence, flow into it from the wound of its own accord. This process should be repeated three or four times, and the wound sucked or washed with warm water before each application of the glass. As a matter of course, when the glass is removed, all the blood should be washed out of it before it is applied again.

We would again urge the importance of instantly cutting out a portion of the skin and flesh around the bite, if it can be done. If powerful caustics are not at hand, lye may be made by pouring water over wood ashes, then boil to consistency of molasses, and apply freely to the wound with a smooth stick.

Constitutional treatment.—As soon as possible, and while persevering in the foregoing treatment, administer spirituous liquor of some kind in very large quantities, and continue it till inebriation sets in, which will be an indication that the poison is being overcome; after inebriation is fairly set in, gradually diminish the doses of liquor. It must be remembered that while the poison is in the ascendancy, it will require very large draughts of liquor to produce the desired effect, as much as half a tumbler at a time is often given, and repeated many times before inebriation ensues. Alcoholic liquor is not an antidote for serpent bites when the person has been accustomed to use liquors freely. The spirit of hartshorn or sal-volatile has been somewhat extensively tried as an antidote to the poison of venomous serpents. It is applied to the wound, and taken internally in doses of 1 teaspoonful every five or ten minutes in a wine-glassful of water, till reaction is thoroughly established. Cases have been reported in which it was given with success when the system was under the full influence of the venom. Many who are acquainted with the virtues of this medicine, and are exposed to these reptiles, are in the habit of always carrying it with them. So well aware are the intelligent natives of India of the efficacy of the spirits of hartshorn in these bites, that they commence with it on the instant, not waiting for superior advice. Inflammation, fever, debility, etc. (which see) arising from these bites, must be treated upon the general principles of treating these affections. In all cases of bites from venomous snakes, send for a surgeon as quickly as possible, and act according to the above directions until he arrives.

3. *Bites of rabid dogs.*—When an individual has been bitten by an animal, respecting which the slightest suspicion of hydrophobia exists,

the one remedy cannot be too quickly resorted to, complete excision of the bitten part. Some persons have possessed sufficient nerve to do this for themselves; few perhaps could, but it has often been effected by unprofessional persons for others; indeed, there might be more danger in waiting many hours for a surgeon, than in submitting to unprofessional operation. The method of excision most to be trusted is the insertion of a skewer of wood, made to fit into the wound caused by the tooth, and carrying the incision so far round, that the entire hollow or cone of flesh is cut out along with the piece of wood. This might be done with safety in the thick part of the calves of the legs, or on the back parts of the thighs or buttocks. Where excision is not resorted to, the free application of nitric acid, caustic potash, or lye boiled down to consistency of molasses, whichever may be most readily procured, must not be neglected,—lunar caustic is not sufficiently strong to be reliable; or in lieu of these, a piece of iron, heated to whiteness, may be inserted into the wound, so as thoroughly to destroy the surface which may have been poisoned. These may seem severe measures, but they are light compared to the unceasing anxiety of mind which must haunt a person who, after having been bitten, feels that due precaution has not been taken; and light indeed compared with liability to the disease itself. In the event of none of the above measures being submitted to, or available, the wound may be thoroughly washed for hours, by means of a stream of warm water poured upon it from a height; a cupping-glass being applied at intervals. These measures are of course only provisional, until the attendance of a surgeon can be procured.

As might be imagined, the preventive medicines for hydrophobia are very numerous; some have been thought highly of by medical men, but for the most part they are secret, quack remedies, and perfectly worthless. It is absolute folly to trust to them, to the exclusion of the only certain preventive—excision or destruction of the wounded tissues.

When, from the peculiar symptoms, and taken in connection with the circumstances altogether they can scarcely be overlooked, an individual is thought to be attacked with hydrophobia, if the hope of saving life is small, much may be done to alleviate so terrible an affliction by proper medical care, which must be sought for at once; in the meantime, whilst all those sights and sounds which aggravate suffering are carefully avoided, laudanum may be given in 30 drop doses, and repeated as circumstances seem to dictate. If ice can be taken, it is said to afford relief, put into the mouth in small morsels; it has also been found of service applied to the back of the neck. If, on the arrival of a medical man, he likes to try any of the various remedies which have been pro-

posed in this disease, he of course can do so, but the above-mentioned will be sufficient for lay interference.

Some recommend immediate salivation with mercury in addition to the foregoing treatment, as one of the most reliable means of neutralizing the poison in the blood before it affects the system. Mere scratches are considered by some more dangerous than deep wounds. The free use of caustic potash, nitric acid, or lye boiled down to consistency of molasses, are considered by some physicians to be efficacious, even if applied within two or three days after the bite occurs. Lye may be prepared impromptu by pouring boiling water over wood ashes, then strain out the lye, boil it down to consistency of molasses, and apply with a smooth stick. The majority of writers on the subject are in favor of keeping the wounds open as long as possible. This may be done by putting a few raw beans on it, and then by applying a large linseed-meal poultice over them.

Is a man who has been bitten by a mad dog, and in whose case no precautions have been taken, a doomed man? Will he be sure to have the disease, and therefore to die of it? By no means. But few, upon the whole, of those who are so bitten become affected with hydrophobia. This frequent immunity from the disease in persons who have been bitten, has tended to confer reputation upon many vaunted methods of prevention. Ignorant and knavish persons have not failed to take advantage of this. They announce that they are in possession of some secret remedy which will prevent the virus from operating; they persuade the friends of those who die that the remedy was not rightly employed, or not resorted to sufficiently early; and they persuade those who escape, that they escape by virtue of the preventive remedy. If the plunder they reap from the foolish and the frightened were all, this would be of less consequence, but unfortunately the hope of security without undergoing a painful operation leads many to neglect the only sure mode of obtaining safety.

A still more anxious inquiry next arises. Whoever has been bitten by a rabid or suspected animal must be considered, and will generally consider himself, as being in more or less danger of hydrophobia. This dread is not entirely removed, even by the adoption of the best means of prevention. Now, how long does this state of hazard continue? When is the peril fairly over? After what period may the person who has received the injury lay aside all apprehension of the disease? To this inquiry, no satisfactory reply can be given. In a vast majority of instances, indeed, the disorder has broken out within two months from the infliction of the bite. But the exceptions of this rule are too numerous to permit us to put firm trust in the unanimity afforded by that interval.

Mr. Youatt describes cases in which there had been no symptoms of rabies observed in the dog at the time the injury was inflicted, though soon afterwards the animal was decidedly rabid. It is much to be regretted that the dog is so often destroyed. When a person has been bitten by a dog or cat suspected to be rabid, the beast ought by no means to be killed, but to be secured and kept under surveillance, and suffered, if it should so happen, to die of the disease. If he do not die, in other words, if he be really not rabid, that will soon appear, and the mind of the patient will then be relieved from a very painful state of suspense and uncertainty, which might otherwise have haunted him for months or years. Should the dog die mad, the injured person will be no worse off than if the animal had been killed in the first instance; nay, in one respect, he will be better off, inasmuch as certainty of evil is preferable to perpetual and uneasy doubt.

In this article we have merely given preventive treatment. Hydrophobia will be treated in its proper place. (See HYDROPHOBIA.)

BITTER ALMOND. (See AMYGDALUS.)

BITTERN, *bit'-turn*, the mother-liquor left after the extraction of salt from sea-water by crystallization. It contains sulphate of magnesia, or Epsom salts, in large quantities, and is one of the principal sources of that salt.

BITTER ROOT. (See APOCYNACEÆ.)

BITTERS, *bit'-turz* [Ang.-Sax.], the common name for an infusion of bitter herbs, which is consumed in large quantities as a stomachic. Water will extract the virtues of most bitter substances as well as spirituous liquors; but on account of the disposition of spirituous solutions to keep for a long time, it may sometimes be desirable to use rum, brandy, wine, whiskey, or alcohol, in which to dissolve or steep the bitter substances; but this is not at all necessary to secure the full effect of the bitters. The best bitters are quinine, Peruvian bark, colombo, gentian, quassia, cascarilla bark, chamomile flowers, the inner bark of the wild cherry-tree, and wormwood. Several barks may be combined, or one substance only may be used. Cinnamon, nutmeg, coriander, cardamom, and sugar or simple syrup may be used to flavor. When aperient and diuretic properties, in addition to the tonic, are desired, a small quantity of Turkey rhubarb and juniper berries may be added, the former being aperient and the latter diuretic. Quassia bitters are preferable for those having a tendency to constipation, as quassia possesses no astringent properties. (See STOMACHIC, TONICS, DYSPEPSIA.)

BITTER SWEET. (See SOLANUM DULCAMARA.)

BITTER WEED. (See AMBROSIA.)

BITUMEN, *be-tu'-men* [Lat.] This term includes a number of

inflammable mineral substances. The fluid are naphtha, petroleum, mineral tar, mineral pitch. The solid are asphaltum, elastic bitumen, or mineral caoutchouc, mineral adipocire, retinasphaltum, pit coal, jet mellilite or honey-stone, and amber. Of these substances, asphaltum and amber have been used in medicine. (See ASPHALTUM, AMBER.)

BLACK ALDER. (See PRINOS VERTICILLATUS.)

BLACK ASH, *blak ash*, impure soda, contaminated with sulphide of calcium, charcoal, and other impurities, formed in the manufacture of soda from sea-salt. By lixiviation, filtration, and evaporation, the ordinary soda of commerce is produced. (See SODA.)

BLACKBERRY. (See RUBUS.)

BLACKBERRY, SYRUP OF. (See SYRUPS.)

BLACK COHOSH, *blak ko'-hosh* [*Actea Racemosa*], a perennial plant belonging to the Nat. order *Ranunculaceæ*. It grows in all parts of the United States and Canada, and is known by the common names of black snake-root, rattle-root, rich-weed, and squaw-weed. The root is the part used, and its activity is due to a resinous principle called *Cimicifugin*. This is an active, powerful and useful remedy, and appears to fulfil a great number of indications. It possesses an undoubted influence over the nervous system, and has been successfully used in chorea, periodical convulsions, epilepsy, nervous excitability, asthma, whooping-cough, delirium tremens, and many spasmodic affections; in consumption, cough, acute rheumatism, neuralgia, milk leg, amenorrhœa, dysmenorrhœa, leucorrhœa, and other uterine affections. Its tonic and antiperiodic virtues are well marked in remittent and intermittent fevers. The infusion is made by putting 1 ounce of the root into 1 pint of boiling water. Dose: of fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; compound fluid extract, $\frac{1}{2}$ to 1 teaspoonful; tincture, 1 to 2 teaspoonfuls; decoction or infusion, 2 to 4 fluid ounces, three or four times a day. (See DECOCTION.)

BLACK DEATH, *blak deth*. Black death is the name given to a most destructive pestilence, which, towards the middle of the fourteenth century, extended itself over all parts of the known world. It took its name from the black spots which appeared on the skin. It was an intense form of the oriental plague, and, like it, was characterized by buboes and carbuncles. It is said to have taken its rise in China, and to have thence traveled westward to Europe, where it made its appearance in 1348. Some accounts state that the impure air was actually visible as it approached with its burden of death. Historians of that time give a most horrible picture of the sufferings and deaths that were occasioned by it. In Europe alone, during the three years that it prevailed, it is said to have carried off 25,000,000 persons, London having

lost over 100,000. It was looked upon as a judgment of heaven; and many thought to save themselves by giving their goods to the church, or by personal chastisements. The Jews were also looked upon as the cause of it; and, in consequence, great numbers of them suffered death. In the city of Mayence alone 12,000 of them were cruelly murdered. The black death has several times made its appearance in Europe since that time, but never with the same virulence. Boccaccio, in the introduction to his "Decameron," has given a lively description of its physical and moral effects in Florence.

BLACK DRAUGHT, *blak' draft*, is an active, saline purgative frequently employed when a speedy evacuation of the bowels is desired. It is composed of an infusion of senna and Epsom salts, with ginger, or some other aromatic to counteract its griping tendency. (See CASSIA.)

BLACK-DROP, *blak'-drop*, is a preparation of opium, formerly secret. It is, essentially, a preparation of acetate of morphia, and is devoid of some of the stimulating properties of crude opium. Black-drop is estimated at three times the strength of ordinary laudanum. Dose, 12 drops; for a child two years old, 2 drops.

BLACK EYES. (See BRUISES.)

BLACK HAW. (See VIBURNUM PRUNIFOLIUM.)

BLACK HELLEBORE. (See HELLEBORUS NIGER.)

BLACK LARCH. (See LARIX AMERICANA.)

BLACK OAK. (See QUERCUS.)

BLACK PEPPER. (See PIPER NIGRUM.)

BLACK SNAKE ROOT. (See BLACK COHOSH.)

BLACK VOMIT. (See YELLOW FEVER.)

BLADDER, *blad'-dur* [Sax. *blader*, from *blawan*, to blow], *vesica urinaria* in Anatomy, is a thin membranous bag which serves as a receptacle for the urine secreted by the kidneys, until it is voided through the urethra. It is situated in the pelvis, and is kept in its place by ligaments, which are usually divided into true and false, the latter being formed of folds of the peritoneum. It is composed of three coats or membranes—the external or fibrous membrane, the middle or muscular membrane, and the internal or mucous membrane. The muscular membrane is composed of bands of muscular fibres running in different directions, and commonly distinguished into two layers, an external or longitudinal, and an internal transverse or circular. Its figure is nearly that of a short oval. It is broader on the fore and back than on the lateral parts; rounder above than below, when empty; and broader below than above, when full. It is divided by anatomists into the summit or superior fundus, the body, the base or inferior fundus, and the neck—that portion which is constricted by a sphincter muscle, and com-

municates with the urethra. On each side, rather below its middle, it receives the two ducts called ureters, which convey the urine from the kidneys into the bladder. (See *BLADDER, DISEASES OF THE.*)

BLADDER, BLEEDING FROM THE. (See *URINE.*)

BLADDER, DISEASES OF THE. The bladder, like every other organ of the body, is liable to certain diseases, one of the most common of which is inflammation, or cystitis. It chiefly affects the mucous coat of the bladder; but all the other coats may be implicated; and it is either chronic or acute. The acute form is known by great pain in the region of the bladder, attended with fever and hard pulse, and a frequent and painful discharge of urine, or a retention. The disease runs its course with rapidity, and subsides or carries off the patient in a few days. The treatment to be adopted is that which is followed in inflammatory diseases generally. Hot fomentations, opiates, mild aperients (as castor-oil), a light diet, and mucilaginous drinks, are the means to be employed. If there is retention of urine, a catheter should be frequently used, but not otherwise. The chronic form of this disease is not uncommon, and arises from various causes—from an abnormal condition of the urine, from a diseased state of the bladder, or of some of the neighboring parts, or from the presence of some foreign substance in the bladder, as calculus. (See *CALCULUS.*) In such cases it is of importance to ascertain the true cause. In general, the treatment is by opiates, and sedatives with nourishing diet and tonics. Infusion of Buchu or of Bearberry is also recommended; and sometimes a belladonna plaster to the part will be of service. Irritability may exist in the bladder, unaccompanied by inflammation, and may arise from over-distention or from nervousness. It is to be treated by the administration of tonics, with the avoidance of all stimulating drinks. The bladder may be affected with paralysis, resulting either from accident, or from disease of the nervous centres, or from over-distention. It gives rise to incontinence of urine, which, however, is to be distinguished from that which sometimes arises from irritability, inasmuch as in this case the bladder is full, and has no power to evacuate; so that it must be drawn off by the catheter. Retention of urine may be caused by mechanical obstacles to its exit, by paralysis, or by a want of power over the muscles.

Many of the diseases and disorders of the bladder are brought on by carelessness, neglect, or too great subservience to the conventional restraints of society; those persons especially, who habitually or necessarily are frequently compelled to restrain the desire, and forego for a time the relief of emptying a distended bladder, are liable to affections of the organ. In early childhood, but sometimes even beyond puberty,

the bladder habitually empties itself during sleep ; night after night this occurs, and proves a serious annoyance, and expense too, from the consequent destruction of bedding. The habit or disorder is sometimes extremely difficult, if not quite impossible, to eradicate. The regular use of the cold hip-bath every morning is one of the most efficient remedies, and the tincture of muriate of iron, or "tincture of steel," as it is frequently called, given twice a day, in 10 drop doses, in water, is often useful. Benzoic acid, and nitrate of potash are both said to have proved successful. Without being purged, the bowels are to be kept lax. In such cases, fluid is to be taken in small quantity only, in the evening. Malt liquor always increases the evil. Where the habit is inveterate, it is better to use one of the india-rubber urinals attached to the person, than to allow the patient to be a nuisance to himself and others. (See BED-WETTING.)

Rupture of the bladder is almost invariably fatal. It is generally caused by blows or falls when the viscus is full of urine, but sometimes without violence, simply from over-distention. In the former case, intoxication is in most instances the first cause of the accident; the individual sits drinking till the bladder is quite full, staggers out to relieve himself, and either falls or stumbles against some object, the urine is effused into the cavity of the abdomen or surrounding tissues; agonizing pain, and extreme vital depression are the immediate consequences, and the patient speedily dies. In the latter case, when the bladder is ruptured from over-distension without violence, it is generally caused by long retention of urine, from obstruction to its discharge. In this case, the first sensation of rupture is rather one of relief than otherwise, the rent being at the lower part of the organ; the fluid is diffused into the loose tissues of the scrotum and surrounding parts, giving rise to severe inflammation and mortification. The bladder is sometimes ruptured by extreme violence, such as that of the passage of a cart over its region. In all these cases, the attendance of a surgeon is absolutely requisite, if possible. Death is all but inevitable, but if life cannot be saved, much relief may be afforded by the moderate use of stimulants, and the free use of large doses of opium.

Strangury.—During the prime of life, the bladder is not generally liable to suffer from chronic disorder, except in persons of dissipated or intemperate habits, but one acute and very painful affection, strangury—generally caused by the application of a blister—is not uncommon. The affection is characterized by burning pain, extending through the urinary passages up to the neck of the bladder, accompanied with constant and distressing desire, and straining effort to pass urine, which will only come away in very small quantities, often mixed with blood.

While it lasts, the condition is a painful and most distressing one. The means of relief are warm hip-baths, demulcent drinks copiously taken, such as barley-water with gum arabic, linseed tea, etc. Warm injections, consisting of $\frac{1}{2}$ pint of gruel containing 20 or 30 drops of laudanum, give much relief; 20 drops of laudanum, or 10 or 15 drops of the sedative solution, may be given by the mouth, and repeated if requisite. When the patient is not in the bath, hot bran poultices are to be used over the lower part of the abdomen.

Stoppage of urine.—With declining years, the bladder becomes more subject to disorder and disease; perhaps the most frequent affection is sudden inability of the organ to expel the urine. This may arise from its having been allowed to become over-distended, from cold, from drinking hard malt liquor—or sometimes from external violence. The case is one of much distress and alarm, and being not devoid of danger, cannot be too soon placed under proper medical treatment. In the meanwhile, the person should be got into a hip-bath, temperature 96° , and kept in for at least half an hour, a warm bed being ready to receive him on coming out; hot bran poultices must be ready to be applied as soon as he is placed in it; just before entering the bath, 1 tablespoonful of castor-oil with 10 or 15 drops of laudanum should be administered. It is not improbable that relief may be obtained by these means; but all efforts of straining must be avoided as useless and hurtful. Of course fluid must be eschewed as long as the stoppage continues. Whilst the above measures are being carried out, medical assistance ought to be procured; for should other means fail, the introduction of the catheter must be resorted to, to save life. Nevertheless, the prosecution of the mode of treatment recommended, if it does not prevent such a necessity, will certainly facilitate a sometimes difficult operation.

Weakness of the bladder, and inability perfectly to retain the urine, is a frequent disorder of advanced age; it often commences with, and is accompanied by imperfect emptying of the organ, either through carelessness or weakness. Sponging the lower parts of the abdomen, etc., with vinegar and water, or salt-water, may be of service. Dr. Day recommends the use of tincture of ergot of rye in these cases; but as a general rule they should be placed under regular medical superintendence. The same may be said of that very troublesome complaint of old age, catarrh of the bladder, in which large quantities of thick mucus are discharged.

Stone in the bladder may be suspected when the urine is liable to become bloody after exercise, when there is pain in the bladder and surrounding parts, in the back and down the thighs, and when the stream

of urine is apt to stop suddenly during the act of passing. Under such circumstances, proper advice cannot be too soon obtained. (See KIDNEY, DISEASES OF THE; URINE, BLISTER, CALCULUS.)

BLADDER FUCUS. (See FUCUS VESICULOSUS.)

BLANCMANGE, OR BLANCMANGER, *blā-monj'* [Fr. white food], a preparation of milk, cream, sugar, and isinglass, which are boiled together. After being flavored, the fluid is run into a mould and allowed to stiffen.

BLEEDING, OR BLOOD-LETTING, *bleed'-ing*, [Sax. *bledan*, to bleed], in Surgery, is the removing of blood from the body, with a view to the prevention or cure of disease. It is divided into general and local; venesection and arteriotomy are instances of the former; scarification, cupping, and the application of leeches, of the latter. General bleeding is had recourse to when the object is to lessen the whole mass of the circulating fluid; local, when the object is to lessen the quantity in some particular part of the body. Venesection is the mode usually had recourse to in general bleeding, and the veins most commonly selected for the purpose are those at the bend of the elbow. In proceeding to open a vein, a bandage is first placed moderately tight round the arm, above the elbow, to obstruct the return of the venous blood; and when the veins begin to swell, the operator selects one, and pressing the thumb of his left hand upon it, at a short distance below the spot where the opening is to be made, presses the lancet into the vein, and gives a slight cut upwards in withdrawing it, so as to make the opening sufficiently large to allow the blood to flow out in a thin stream. When a sufficient quantity of blood has been abstracted, the operator's thumb should be placed on the cut in the vein and the bandage removed, when a folded piece of lint, placed over the wound and secured by a figure of 8 bandage, will be sufficient to prevent the bleeding, and the wound will speedily heal. It should be borne in mind, however, that bleeding is always a dangerous operation, even apart from the evils that may be produced from the abstraction of too much blood, and should never be performed, except in very urgent cases, by any but a skilful surgeon. For local bleeding, leeches are always the safest, and are most generally had recourse to. In dealing with leeches, it is well to remember that they are cold-blooded animals, and that heat is highly injurious to them, and unfits them for the performance of their office. Hence, when there is a difficulty in making them fix readily, the part should be cooled with a cloth dipped in cold water, or moistened with cream or milk, or a single drop of porter, and the leeches confined in the proper situation under a small glass. In former times, bleeding was much more practised than it is at

present. It was resorted to in almost every disease, particularly such as were inflammatory, or were thought to be so; and even where no disease existed, it was regarded as an excellent precautionary measure to have a vein opened once or twice a year. Some contend that this mode of proceeding was then necessary, and that, since that time, a great change has taken place in the physical constitution of the people. There may, perhaps, be some truth in this; but we cannot believe that the constitution of the people ever was such as to justify the wholesale bleeding that was at one time practised. (See CUPPING, LEECH, ARTERIOTOMY, ETC.)

BLEEDING, OR HEMORRHAGE. (See HEMORRHAGE.)

BLEEDING FROM THE BLADDER. (See URINE.)

BLEEDING FROM THE LUNGS. (See HEMORRHAGE.)

BLEEDING FROM THE NOSE. (See HEMORRHAGE.)

BLEEDING PILES. (See PILES.)

BLENNORRHEA, *blen-nor-re-a* [Gr. *blenna*, mucus; *rheo*, I flow], is a term used in Medicine to denote an unusual discharge of mucus from any of the mucous membranes.

BLINDNESS, *blind'-nes*, is a more or less complete deprivation of vision, in consequence of a diseased state of the organs of sight. Some of the blind retain a slight perception of light, or are able to distinguish the general outlines of bodies, or very bright colors, while others are entirely deprived of the faculty. Some are blind from birth; others become so in consequence of disease. In those that are born blind, the eyelids are sometimes united to each other, or to the eye-ball itself; sometimes a membrane or film covers the eye; sometimes the pupil is closed, or adheres to the cornea; and sometimes the opening of the pupil is not in the right place, so that the rays of light do not fall in the middle of the eye. It may also arise from some defect of the optic nerve, or of the brain in connection with it. Blindness may result from disease of the optic nerve, or of the brain; or from an abnormal condition of the humors or coats of the eye, intercepting the passage of the light to the optic nerve. Among the diseases of the brain that may produce blindness are hydrocephalus, inflammation, congestion, softening or wasting of that organ. The eye itself may be injured by inflammation, congestion, suppuration, or cancer; spots, films, or tumors may form on the cornea, and so destroy its transparency; the humors of the eye may become thick and turbid; or the opening of the pupil may be destroyed. Blindness often arises from debility of the optic nerve, occasioned frequently by long-continued overstraining of the sight. It is in this way that certain kinds of occupations are so injurious to the sight, and often cause blindness. Hence it is, too, that in the northern regions, where the country is

long covered with snow, which reflects the sun's rays, and in the sandy deserts of Africa, blindness is common. In old age blindness is usually occasioned by a drying up of the humors of the eye, a thickening of the cornea, or crystalline lens, or atrophy of the optic nerve. Day blindness is an inability to see during the day in a bright light. Those who have been long immured in dark cells are often affected in this way. Night blindness is that state in which blindness comes on towards evening. This may continue for some time; but at length the eyes become weak during the day also, and it terminates in amaurosis. Proceeding, as blindness does, from such a variety of causes, it is impossible to say anything here regarding its treatment, which will be found noticed in other parts of the work. There is not one of the senses that affords such an endless variety of perceptions, such a fund of materials for the mind, the imagination, to work upon, as that of sight. When one considers the infinitely greater amount of information that is received by the eye than by the ear, he is naturally led to the conclusion that the blind must be in a much more helpless and pitiable condition than the deaf. In reality, however, this is found not to be the case, and various attempts have been made to account for it. The blind, as a class, are lively and cheerful; the deaf, shy and melancholy, often morose and suspicious. "Take," says Dr. Wilson, "a boy, it may be, of nine or ten years of age, who has never seen the light, and you will find him conversable, and ready to give long narratives of past occurrences, etc. Place by his side a boy of the same age who has had the misfortune to be born deaf, and observe the contrast. The latter is insensible to all you say; he smiles, perhaps, and his countenance is brightened by the beams of 'holy light;' he enjoys the face of nature, nay, reads with attention your features, and, by sympathy, reflects your smile or frown. But he remains mute; he gives no account of past experience or of future hope. You attempt to draw something of this sort from him; he tries to understand, and to make himself understood; but he cannot. He becomes embarrassed; you feel for him, and turn away from a scene too trying, under the impression that, of these two children of misfortune, the comparison is greatly in favor of the blind, who appears by his language to enter into all your feelings and conceptions, while the unfortunate deaf mute can hardly be regarded as a rational being; yet he possesses all the advantages of visual information as direct sensation." The cause is not that the blind possess a greater, or anything like an equal stock of materials for mental operations, but that "they possess an invaluable engine for forwarding these operations, however scanty the materials to operate upon—artificial language," which is the medium of thinking; and "its value to a man is nearly equivalent to that of his

reasoning faculties." The truth is, that the deaf are far more isolated all their lives from those that hear than the blind are from those that see. The blind are able to make up, in great measure, for their want of sight by the greater development of their other senses. By assiduous application and attention, the senses of touch and hearing become much more delicate and acute. It has even been said that some have been able to distinguish colors by means of touch; but this seems very doubtful. By accurately distinguishing the various kinds and modifications of sound, they are able to form correct ideas on many subjects. Much, too, depends upon the memory, which, from exercise, becomes much more retentive than in ordinary cases. It is estimated that there are no fewer than three million of blind persons in the world at the present time. Of this vast number, thirty-seven thousand are in France, about forty-five thousand in Germany, upwards of seventy thousand in Russia, about three thousand in Holland, five thousand seven hundred in Sweden, upwards of two thousand in Norway, about twenty-nine thousand in the British Isles, and upwards of twenty thousand in the United States. (See EYE, VISION; EYE, DISEASES OF THE; AMAUROSIS, OPTHALMIA, ETC.)

BLINDNESS, COLOR. (See COLOR BLINDNESS.)

BLISTER, *blis'-tur*, [Ang.-Sax.], is a bladder or vesicle on the skin, caused by the accumulation of serous fluid under the cuticle, and may be occasioned by a burn, by hard friction, or by disease. There are certain substances also that possess the property of raising blisters. (See BLISTERS.) In puncturing a blister, in order to allow the serous fluid to escape, care should be taken not to ruffle or displace the cuticle, particularly if the skin be very tender underneath.

BLISTERED HANDS OR FEET, *blis'-turd*. When the hands are blistered from rowing, or the feet from walking or other causes, be careful not to allow the blisters to break, if possible. Some persons are in the habit, by means of a needle and piece of worsted, of placing a seton into blisters to draw off the water; but in our opinion this is a great mistake, and retards the healing. Bathe the blisters frequently in warm water, or, if they are very severe, make a salve of tallow, dropped from a lighted candle into a little gin, and worked up to a proper consistence, and on going to bed cover the blisters with this salve, and place a piece of clean soft rag over them.

BLISTER FLIES. (See CANTHARIDES, POTATO FLY.)

BLISTERS, OR VESICANTS, *blis'-turz*. Blisters, or vesicants, are medical agents which, when applied to the skin, irritate it, and cause a secretion of serous fluid, which collects under the cuticle, and

forms a blister. Many medicinal agents possess this property, but that most commonly employed in this country is the Spanish, or blistering fly, or cantharis. It is usually employed in the form of a plaster, composed of 1 part of cantharides, in powder, to 2 parts of a mixture of yellow wax, suet, lard, and resin. Sometimes it is of advantage to employ it in a liquid form. The blistering liquid of the pharmacopœia is composed of 8 ounces of cantharides, in powder, 4 fluid ounces of acetic acid, and a sufficient quantity of ether to form 20 fluid ounces. There is also a blistering paper, *charta epispastica*, sometimes used. Tincture of cantharides, croton oil, strong liquid ammonia, and mustard, are applications of the same kind, but milder in their operation. Boiling water is a speedy and powerful vesicant. Blisters are employed as counter-irritants, to draw away inflammatory action from a part to which direct remedies cannot be applied. They also stimulate the absorbents, and thus promote the removal of effused fluids. Blisters should never be employed at the beginning of an inflammation, nor during its acute stages, but only after it has subsided. They should not be kept on too long, but removed, and the part dressed with soft warm poultices. Usually from six to ten or twelve hours is the time allowed for a blister, but sometimes three or four hours may be quite sufficient. Sores which have taken an unhealthy action have often been produced by keeping blisters too long upon children. A piece of very thin paper, oiled, is often laid between the blister and the skin when it is applied to children or very thin-skinned people. Blisters of cantharides particularly, when kept on for too long a time, sometimes produce strangury and other distressing affections of the bladder. (See CANTHARIDES, CANTHARIDAL COLLODION.)

BLOOD, *blud* [Sax. *blod*; Germ. *blut*; Lat. *sanguis*], a red fluid circulating through the heart, arteries, and veins, of animal bodies, serving for the nourishment of all their parts, and the support of life. This nutritive fluid, called scientifically the *Liquor Sanguinis*, consists, firstly, of water, holding, in a dissolved condition, fibrine, albumen, potassium, and sodium, together with phosphoric acid and other substances; secondly, of corpuscles, or globules, which float in the *liquor sanguinis*. When drawn from the body, the blood undergoes a remarkable change. By degrees it gelatinizes, and forms spontaneously coagulum and serum. Coagulum consists of the fibrine and the corpuscles; serum, of water, albumen, and the various saline matters. The corpuscles are of two kinds—red and white, the red being the more numerous. In man, a red corpuscle varies in size from $\frac{1}{4000}$ to $\frac{1}{2800}$ of an inch. The discovery of the globules of the blood is due to Leuwenhoeck and Malpighi, whose researches were made soon after the micro-

scope was invented. Blood is termed arterial or venous, according to the vessel in which it circulates. Arterial blood is a florid red, with a stronger odor and less specific gravity than the venous fluid. Venous blood is of a dark purple. The scarlet, or arterial blood, which is one degree warmer than venous blood, owes its color to its undergoing contact with atmospheric air in the lungs; it circulates in the pulmonary veins, the left cavities of the heart, and the arteries by which it is distributed to the different organs throughout the body. The dark purple blood circulates in the veins, in the right cavities of the heart, the pulmonary artery, and the lungs. (See CIRCULATION OF THE BLOOD.)

There is, again, a difference between arterial and venous blood in respect to the gases which they contain; the first holds a supply of oxygen; the second is rendered impure by the carbonic acid with which it is loaded. Blood is the production of the elaboration of chyle, and acquires its nutritive and life-giving qualities in respiration. By means of the arterial vessels it penetrates to all the organs, distributing nutrition to every organic tissue. It is, moreover, the principal source of animal heat; from it, also, the secretive organs derive their various products, such as saliva, bile, urine, etc. The average quantity of blood in an adult man has been calculated at 28 lb or pints. It has been shown that the composition of the blood undergoes a change in various diseases: and, after repeated bleedings, the number of corpuscles becomes permanently diminished. The color, as well as the composition of the blood, varies in different sections of the animal kingdom: red in the vertebrates and annelides, white and transparent as water in insects and crustaceans, bluish-white in mollusca, yellowish in holothurians, and some other invertebrates. This difference in color arises from the corpuscles, which are in some cases red, and in others white or straw-colored, or bluish-white. The chemical constituents of blood, when in a healthy condition, are—albumen, fibrine, hæmatin or coloring matter, oleic, stearic, lactic, phosphoric, sulphuric, and hydrochloric acids, in combination with soda, potash, ammonia, lime, magnesia, and a small portion of phosphorized fat. The blood also contains oxygen, nitrogen, and carbonic acid. In considering the chemical constitution of the blood, it may be regarded as consisting of two parts—the *liquor sanguinis*, and the blood corpuscles floating therein. The *liquor sanguinis* is composed of serum, holding a very small quantity of fibrine in solution. The following table of the composition of these two parts of the blood is based on the analysis of Schmidt and Lehmann, and is a modification of that quoted in Miller's "Elements of Chemistry":

SPECIFIC GRAVITY OF BLOOD CORPUSCLES, 1.0885.

Composition of Blood Corpuscles.

Water.....	.688	Sulphuric acid.....	0.066
SOLID CONSTITUENTS:		Phosphoric acid.....	1.134
Hæmatin (with iron).....	16.75	Potassium.....	3.328
Globuline and cell membrane.....	282.22	Sodium.....	1.052
Fat... ..	2.31	Oxygen.....	0.667
Extractive matter:..	2.60	Phosphate of lime.....	0.114
Chlorine.....	1.686	Phosphate of magnesia.....	0.073

SPECIFIC GRAVITY OF LIQUOR SANGUINIS, 1.028.

Composition of Liquor Sanguinis.

Water.....	.902.90	Phosphoric acid.....	0.191
Fibrine.....	4.05	Potassium.....	0.323
Albumen.....	78.84	Sodium.....	3.341
Fat.....	1.72	Oxygen.....	0.403
Extractive matters.....	3.94	Phosphate of lime.....	0.311
Chlorine.....	3.644	Phosphate of magnesia.....	0.222
Sulphuric acid.....	0.115		

Taking the blood as a whole, Liebig gives its component parts as follows:

Water.....	80	Solid matter.....	20
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The solid matter, on being incinerated, gives $1\frac{1}{4}$ to $1\frac{1}{2}$ per cent. of ash, which consists of one-half sea-salt, one-tenth of peroxide of iron, and the rest of lime, magnesia, potash, soda, phosphoric acid, and carbonic acid. (See RESPIRATION, CIRCULATION OF THE BLOOD, AIR, AERATION, FOOD, DIGESTION.)

BLOOD-LETTING. (See BLEEDING.)

BLOODROOT. (See SANGUINARIA CANADENSIS.)

BLOOD, SPITTING OR VOMITING OF. (See HEMORRHAGE.)

BLOODY FLUX. (See DYSENTERY.)

BLOODY URINE. (See URINE.)

BLOWS, *bloze*, may be serious either from the violence used in their infliction, or from the site of the injury. A blow on the head may cause merely bruising of the scalp—if more severe, concussion or injury to the brain, or fracture of the skull. The latter accident is most likely to happen at the side of the temple, where the bone is thin: but severe injury to the brain frequently occurs from blows at the under and back parts of the head. A severe blow on the spine may cause paralysis of the lower limbs, with or without fracturing the vertebræ. When a blow, even comparatively slight, is inflicted upon a spot immediately over a collection of nerves, most distressing effects, and sometimes immediate death may result; such is the case from blows on the neck, on the pit of the stomach, or over the region of the heart. The deadly faintness which ensues should instantly be combated by the first stimulant—

ammonia, ether, or spirit of any kind—which can be procured. Cold water should be suddenly dashed over the surface, or down the spine; if this is unsuccessful, the patient is to be put into a warm bed, and artificial respiration employed along with external heat, mustard-plasters to the spine and pit of the stomach, and stimulant injections. (See BRAIN, BRUISES, CONCUSSION, CONCUSSION OF THE BRAIN, SHOCK.)

BLUEBERRY. (See BLUE COHOSH.)

BLUE COHOSH, *blu ko'-hosh* [*Caulophyllum Thalictroides*], a perennial plant belonging to the Nat. order *Berberidaceæ*. It grows in low moist grounds all over the United States and Canada. In different parts of the country it is known as pappoose berry, blueberry, and squaw-root. The root is the part used in medicine. Blue cohosh is possessed of emmenagogue, parturient, and antispasmodic properties. While it is a valuable agent in all chronic uterine diseases appearing to exert an especial influence on the uterus, it has also been successfully employed in rheumatism, dropsy, colic, cramps, hiccough, epilepsy, hysteria, etc. The extract of blue cohosh is preferable to ergot for expediting delivery, in all those cases where the delay is owing to debility, or want of uterine nervous energy, or is the result of fatigue. It is used as a wash for the aphthous sore mouth and throat, combined with equal parts of *hydrastis canadensis*. Dose: fluid extract, 15 to 40 drops; solid extract, 1 to 5 grains; pills, 2 grains, 1 to 3 pills; decoction or infusion, 2 to 4 ounces, three or four times a day. (See DECOCTION, INFUSION.)

BLUE COPPERAS, *blu kop'-pur-as*, sulphate of copper, so called to distinguish it from green copperas, which is sulphate of iron. (See COPPER.) It is also called blue vitriol and blue-stone.

BLUE DISEASE, *blu diz-eez'* [*Cyanosis*], a condition dating from birth, in which, from malformation of the heart, the blood is only partially arterialized in the lungs. Few subjects of the disease survive infancy, but there are instances of their attaining mature age. The disease is characterized by the purple appearance of parts which are usually red, by languor of all the functions, and by great susceptibility to cold. The disease must not be confounded with the leaden blue color of the skin, brought on by long-continued internal use of nitrate of silver.

BLUE FLAG. (See IRIS VERSICOLOR.)

BLUE OINTMENT. (See MERCURIAL OINTMENT.)

BLUE PILL, *blu pil* [*mercurial pill*, Lat. *Pilula Hydrargyri*], is formed by rubbing 2 ounces of mercury with 2 ounces of confection of roses until metallic globules are no longer visible, then adding 1 ounce of liquorice-root in fine powder, and mixing the whole well together.

Dose, from 3 to 8 grains—3 grains of the pill containing 1 grain of mercury. This is one of the best forms of administering mercury internally. To induce salivation, 5 grains may be given night and morning, combined with a little opium, to prevent its passing off by the bowels. In larger doses it acts as a purgative. Blue pill is very serviceable in many forms of bilious derangement, but the frequent or indiscriminate use of this medicine is justly condemned as productive of many evils. (See MERCURY.)

BLUE VITRIOL. (See BLUE COPPERAS.)

BLUNT-LEAVED DOCK. (See RUMEX.)

BLUSHING, *blush'ing* [Dan. *blussen*, to blaze or glisten], is a sudden suffusing or reddening of the face, excited by a sense of shame, confusion, or surprise. It is produced by an increased flow of blood into the capillary vessels of the face and neck; and, besides reddening, it creates a sensation of heat in those parts. It is occasioned by the mental shock acting upon the brain, and withdrawing the nervous energy which ordinarily contracts the muscular coats of the blood-vessels of these parts, whence the blood is permitted to flow with greater violence through the vessels. In order to cure the habit of blushing, which is often troublesome, persistent efforts should be made to maintain a calm and self-possessed frame of mind under exciting circumstances.

BOARDING-SCHOOL. (See SCHOOL.)

BOIL, *boil*, called also *furunculus*, from the Latin *furo*, I rage, on account of the violent heat and inflammation attending it, is a hard, painful tumor of the skin and the subjacent cellular tissue. It makes its appearance as a small, hard, inflamed spot on the skin, and gradually enlarges into a painful tumor, having a white conical centre, surrounded by a hard inflamed base, and varying in size from the bulk of a pea to that of a pigeon's egg. It proceeds to suppuration and discharges a few drops of purulent matter, commonly mixed with blood, and a central mass, called the core. This last often lies deep, and causes considerable pain before coming away; but, without its removal, the abscess will not heal. Boils, though generally very troublesome, are not attended with danger. They occur mostly in young and vigorous persons; but they also occasionally break out upon the weak and delicate. They sometimes follow each other in rapid succession, and are most common in the spring.

Treatment.—They all take their rise in some disordered state of the digestive organs; and hence it is necessary that the bowels be at first freely opened, and then regulated by gentle, unirritating laxatives. The diet should be plain and simple. In delicate constitutions, a course of

sarsaparilla will be found of great use; quinine is also recommended in some cases. In dealing with the boil itself, suppuration is to be hastened and perfected by means of linseed-meal poultices; and as soon as the prominent part of the swelling becomes soft, a free opening should be made into it with a lancet, and as much matter as can be pressed out of it by tolerably firm pressure should be removed, together with the core; or the poultice should be continued until the core is drawn out, when the wound will speedily heal. Persons who are compelled to go about their occupations during the progress of a severe boil, will find a small piece of lint dipped in olive-oil, and retained in its place by a disk of adhesive plaster, a very soothing and convenient application. Boils are apt to recur in succession, for the reason, probably, that they depend upon some derangement of the system which requires attention. If the person be of full habit, the diet should be reduced, all fat and rich things eschewed, meat partially or entirely given up for a time, and stimulants avoided. A succession of boils is very apt, in some constitutions, to follow the application of a blister. In constitutions which show evident signs of debility, it may be advisable to increase the amount of animal food taken, and to allow good wine in moderation. When the bowels are clear, and the tongue tolerably clean, but the boils still continue to appear, dilute nitro-hydrochloric acid (British Pharmacopœia) should be given in doses of 20 drops in a wine-glassful of water thrice daily, or in a wine-glassful of infusion of bark. In some cases iron is required. A grain of quinine may be taken with each dose of the mineral acid, instead of bark.

Boils are popularly said to be “healthy,” and in one sense they may be so; that is, if the deranged state of the system relieves itself by their eruption; but they are also to be regarded as warnings that some change in habits, or that medicine is required. A series of neglected boils may wind up with a carbuncle. Carbuncle is of the same nature as a boil, but more severe and dangerous. (See CARBUNCLE.)

BOILING, *boil'-ing*. Boiling is the process in cookery by which food is submitted to the action of water at the boiling point of 212° Fahr. Theoretically, this is the case, but in the cooking of meat especially, boiling, that is ebullition, should not be permitted. A temperature—according to Liebig—50 or 60 degrees lower, being sufficient, if proper time be given to cook meat thoroughly, whilst it is rendered much more tender, and easier of digestion than when the process is carried more quickly, and by a greater degree of heat. In fact, meat to be properly cooked in this way, ought rather to be stewed than boiled. Somewhat, however, must depend upon the end in view in cooking the meat. If it is desired to be simply a piece of well-cooked

meat, not only as regards taste, but as to nutritive powers, the method recommended by Liebig should be followed; that is, the water in which the meat is to be cooked should be made to boil briskly at the time the latter is put into it, and for a few minutes after, and then sufficient cold water is to be thrown into the pot to reduce the temperature of the whole to 150° , at about which point it should be maintained until the meat is thoroughly cooked, that is, till all appearance of redness has disappeared. The principle of the process is, that by the sudden immersion of the meat in boiling water, the most external of the constituents of the flesh, but more particularly the albumen, become quickly hardened and coagulated, so as to form a kind of case around the interior portions. Of course, if the high temperature is preserved, this process of hardening will go on throughout the whole mass, which is thus—and too often it is the case—made hard and indigestible. But in consequence of the reduction of temperature produced by the addition of cold water, this is prevented, the meat is cooked by a heat which cannot harden it, and its nutritive soluble principles are kept from exuding by the case-hardening of the first few minutes' boil. The reverse of the above must, in some degree, be the case, when meat is boiled for the sake of the soup; it must then be put into the water whilst it is cold, and the temperature gradually raised to near the boiling point. In this way there is no outer hardening to interfere with the water dissolving out the soluble nutrient principles of the whole mass; the latter, of course, losing proportionally. As meat cannot be cooked in water without a certain portion of its nutrient matters being dissolved out, the water should never be thrown away; if the saving is unimportant to those who cook the meat, there are plenty of poor to receive the unused liquor; but if it is a consideration that nothing be lost, then may the soup be turned to account by being consumed along with the meat. Of course the cooking may be so managed as to make both palatable.

Vegetables require thorough boiling, and often disagree for want of it. (See FOOD, BROILING, ROASTING.)

BOLDO LEAVES, *bole'-do*, the new South American tonic. It has been used effectually in chronic torpidity of the liver, and in atony of various organs, where quinine could not be tolerated. Dr. Zarembo recommends it in gonorrhœa, rheumatism, and dyspepsia. Dose, of the fluid extract, 1 to 5 drops, gradually increased.

BONEBLACK. (See CARBO ANIMALIS.)

BONE, BONES, *bone*. Bone, in Anatomy, is a hard complex structure, forming the framework or skeleton of the body in man and the higher animals. It is confined to vertebrate animals; and even in the lowest order of this class, the cartilaginous fishes, it is entirely

wanting. The bones form a framework for the moulding and adequate support of the soft parts of the body; cavities for the lodgement and protection of delicate organs; joints for locomotion; and levers for the action of the muscles. They are always in the interior of the body, and even when they approach the surface are covered by some soft membrane, muscle, skin, etc. The first development of bone is commonly—though not always, as in the bones of the head—preceded by the formation of a cartilaginous structure, occupying the place which the bone is afterwards to take. It has commonly been said that the bone is formed by the ossification of the cartilage; but this, for various reasons, is thought not to be the case. The process of bone-formation always commences in the immediate neighborhood of blood-vessels, which pass down into canals excavated in the substance of the cartilage, and lined by a continuation of its investing membrane. Hence the spots where these vascular canals are especially developed, are termed centres of ossification. One of these is usually found in the centre of the shaft of a bone, and one at each end, with an additional one for any considerable projection or process. In the flat bones there is generally one in the middle of the surface, and one in each of the principal processes. Until the bone attains its full dimensions, the parts which contain distinct centres are not connected by osseous union, but only by cartilage, so as to allow an increase in the size of the bone by the growth of cartilage between its detached portions, which gives place to bony structure when there is no further need of increase. There exists a close correspondence as to the number of ossific centres in the early condition of the skeleton of all vertebrated animals. Bones are so constituted that a constant process of deposition and absorption is carried on in them, as in the softer tissues, modelling the shaft into its requisite proportions during the successive stages of growth. It is much more actively carried on in youth than in middle life, and is greater in the vigor of manhood than in old age. Bones increase in length not so much by interstitial deposit, as by addition to their ends; that is, by progressive ossification of the layers of cartilage which intervene between the ends of the shaft and the epiphyses. Bones are largely supplied with blood-vessels. The solid osseous texture which forms the cylindrical shafts of the long bones, and the thick external plates of the denser flat bones, are penetrated by a series of large canals, termed Haversian (after their discoverer), which form a network in its interior, and serve for the transmission of blood-vessels into the interior. These canals, in the long bones, run for the most part in a direction parallel to the central cavity, and communicate with this, with the external surface, and with each other, by frequent transverse branches. They vary in diameter from $\frac{1}{200}$ to $\frac{1}{2000}$ of an inch,

averaging about $\frac{1}{500}$; and are smallest near the outer surface, where the bone is most compact; but becomes gradually larger towards the interior. In the long bones of man, and of most mammalia, there is a central cavity, which is filled with the fatty substance known as marrow; and the space in which the marrow lies is called the medullary canal. This cavity does not exist in the bone in its early state, but is formed by the removal of the cancellated osseous tissue first developed in its interior. Among birds, however, the central cavity, instead of being occupied by marrow, is filled with air, and communicates with the lungs; so that the membrane lining it becomes an auxiliary organ of respiration; while the lightening of the bones thus produced diminishes their specific gravity. Bones are covered externally by a strong fibrous membrane, termed the periosteum, which serves to protect the blood-vessels entering them. The medullary canal is also lined by an extremely delicate membrane, termed the medullary membrane, which supports the marrow, and provides a stratum for the subdivisions of the medullary artery before they penetrate the contiguous osseous substance. The Haversian canals are also lined by a similar membrane. Though bones possess little sensibility in health, yet, when diseased, they become highly sensitive, a manifest indication that they are supplied with nerves. These may, indeed, be traced into some of the minute foramina on the shaft of a long bone, but more easily in the articular ends. A nerve also enters the medullary canal with the nutrient artery of the medulla, and divides, like the artery, into an ascending and a descending branch. Bone is composed of a basis of animal matter, impregnated with "bone-earth," or phosphate of lime. The first ingredient makes it tenacious and elastic, the second gives it the requisite hardness. These may be separated from each other; the latter may be entirely dissolved away, by soaking the bone in dilute muriatic or nitric acid, when a substance of cartilaginous appearance is left; the former, by subjecting the bone to heat sufficient to decompose the animal matter, when we obtain the whole calcareous substance *in situ*. The animal portion of a bone forms about one-third, the earthy about two-thirds; and the relative proportion of the two elements is said to differ little in different classes of animals. The following are the analyses of ox-femur and the human fore-arm by Heintz:

	Ox-femur.	Human fore-arm.
Animal matter.....	30.58	31.11
Phosphate of lime.....	57.67	59.14
Carbonate of lime.....	6.99	6.32
Phosphate of magnesia.....	2.07	1.20
Fluoride of calcium.....	2.69	2.23
	<hr/> 100.00	<hr/> 100.00

Bones are liable to various kinds of disease, like other parts of the system. Inflammation may attack them, and produce the same changes that it does in the soft parts, suppuration, softening, ulceration, and mortification. In slighter cases it may cause softening and swelling. Aperient and cooling medicines, with leeches and fomentations, should be employed at first, and as soon as matter appears to be formed, a free opening should be made. (See CARIES, NECROSIS, EXOSTOSIS, RICKETS.) Sometimes atrophy, or wasting of the substance of the bone, takes place, in consequence of disease, or the supply of arterial blood being interrupted, or simply from disuse. Again, bones sometimes lose their earthy constituents, and become soft and brittle, breaking often from the slightest cause. It is most frequently met with in elderly females. The cause of this disease is unknown, and little is known of its treatment, beyond endeavoring to strengthen the system. (For broken bones, see FRACTURES.)

BONESET OR THOROUGHWORT. (See EUPATORIUM PERFORIATUM.)

BOOTS, TIGHT-FITTING. (See FOOT, CORNS.)

BORACIC ACID, *bo-ras'-ik*, [from Arab. *bourac*, a species of nitre], (BO.)—This acid, which may be regarded as a teroxide of boron, is the only known compound of oxygen and boron. It occurs in nature in certain volcanic districts, where it issues from the earth in jets mixed with steam. In Tuscany, these jets, or *fumerolles* as they are called, are conducted into artificial basins or small ponds. The boracic acid remains dissolved in the water, which is periodically removed, and evaporated in shallow leaden pans, which are heated by other *fumerolles* in the neighborhood. During the evaporation, great quantities of sulphate of lime are deposited, which require removal from time to time. About seven hundred and fifty tons of crude boracic acid are annually exported from Tuscany. The crude acid is contaminated with 25 per cent. of sulphate of ammonia and alumina, and other saline impurities. Boracic acid is used principally for making borax, or baborate of soda. (See BORAX.) Boracic acid, on being strongly heated, becomes anhydrous; and at a red heat it fuses into a transparent glass, which remains clear as it cools; but it soon crumbles to pieces by absorbing water from the air. Boracic acid communicates to its compounds the property of fusibility; hence the use of many borates, more especially the baborate of soda, as fluxes. It dissolves in three times its weight of boiling water, but is very insoluble in cold. The solution is remarkable for possessing the properties of an alkali when tested with turmeric-paper, which it changes to a dark brown. Boracic acid dissolves in alcohol, and burns with a characteristic green flame, with the exception of baborate of soda.

BORAX, *bo'-raqs*, [Arab. *baurac*, a species of nitre], a compound containing boracic acid (which see) and soda. It was formerly imported from the East in the crude state, under the name of *tinca*, which contained borax in combination with various substances of a saponaceous nature. It was purified by being heated with lime or soda until the whole of the soapy matter and other impurities were separated. Borax is now mostly prepared by fusing two parts of boracic acid with one part of soda ash. It crystallizes in rectangular hexagonal prisms, containing 10 equivalents of water. Great pains are taken to crystallize the solution in regular crystals of a large size, as such only are marketable. Borax has a feebly alkaline taste and reaction; and in medicine is sub-astringent, detergent, diuretic, and emmenagogue. It is recommended in certain uterine affections, and as a solvent for uric or lithic calculi. Dose, 5 to 40 grains. The glycerine of borax, composed of 1 ounce of the latter and 4 fluid ounces of the former, is an excellent application to aphthæ and ulcers of the inside of the mouth, sore nipples, eruptions, etc. Of similar use is the honey of borax, composed of 64 grains of borax to 1 ounce of clarified honey.

BOTANY, *bot'-a-ne*, [Gr. *botane*, an herb], that part of natural history which relates to the vegetable kingdom. In its widest sense, botany comprehends all that is known of plants, and, therefore, forms a boundless field of inquiry. The student has to consider the external configuration of plants,—their structure, the functions which they perform, the relations which they bear to each other, and the uses to which they are subservient. Many are deterred from studying botany by a misconception of its nature and scope. Imagining that its sole object is to name and classify the various vegetable productions of the globe, they conclude that the study is confined to the acquisition of certain dry details and a vocabulary of hard words. “The standing objection to botany,” wrote Gilbert White of Selborne, England, “has always been, that it is a pursuit that amuses the fancy and exercises the memory, without improving the mind or advancing any real knowledge. * * * But the botanist * * * should be by no means content with a list of names; he should study plants philosophically, should investigate the laws of vegetation, should examine the powers and virtues of efficacious herbs, should promote their cultivation, and graft the gardener, the planter, and the husbandman on the phytologist. Not that system is by any means to be thrown aside,—without system, the field of Nature would be a pathless wilderness,—but system should be subservient to, not the main object of, pursuit.” To facilitate investigation, Botany has been divided into several departments, which may be regarded as separate sciences. The objects and scope of each of these sub-sciences will now be explained.

1. **STRUCTURAL BOTANY, OR ORGANOGRAPHY**, includes everything relating to the organization of plants. It describes the different kinds of tissue which enter into the composition of plants, it explains the structure of every organ; and it also teaches the relation that one organ bears to another. That branch of structural botany which has reference to the elementary tissues, is sometimes distinguished as Vegetable Histology. The microscope has shown that the various tissues of plants are composed of little membranous sacs or vesicles, varying in form and size, and united in different ways. (See **CELLS**.) The study of these elementary organs cannot be prosecuted without the aid of costly instruments, but much may be learned from the clear descriptions and excellent illustrations given in modern botanical works, particularly those of Gray, Lindley, Balfour, and Bentley. Some plants consist of simple cells only, which continue throughout life to produce new cells, and to perform all the vital functions. A flowering plant, however, although originally cellular, produces organs composed of cells and vessels, variously modified and arranged, and covered by an epidermis. These compound organs may be divided into nutritive, or those concerned in the nourishment of the plant, and reproductive, or those which are employed in the production of new individuals. The former are the stem, root, and leaf; the latter, the flowers and fruit. Leaves occupy various positions on the stem and branches, and their arrangement forms a subject for special study. The arrangement of flowers on the floral axis and its ramifications, has also to be considered. The term **Morphology** has been applied to that portion of Organography which treats of the abnormal modifications of the different organs. The researches which have been made in this department during the last forty years, have confirmed the doctrine advanced by the German poet Goethe, namely, that all those parts familiarly known as leaves, flowers, and fruit, are constructed on a simple uniform plan, out of one kind of organ in different states of modification and combination; and that there is no other difference between the flower of a rose and that of a nettle, than what arises from modifications and combinations of this typical organ, which is the leaf. Morphology is a most attractive subject for study, but less important in a practical point of view than that part of Organography which has reference to the ordinary forms of organs, and the manner in which they are arranged. No systematic arrangement can be understood without a knowledge of the laws upon which the symmetry of plants depends, and a practical acquaintance with the structure of every kind of organ.

2. **PHYSIOLOGICAL BOTANY** treats of plants in a living or active state, and of the manner in which their functions are performed; it explains

how they are influenced by the several agencies of light, heat, air, and moisture; and it describes their various secretions and the nutriment afforded by the soil. Plants, not being endowed with voluntary motion, derive their food either from the soil in which they are fixed, or from the atmosphere by which they are surrounded. The nutriment, consisting of water, generally holding salts in solution, is absorbed, by the aid of endosmose, by the extremities of the root. It then passes from cell to cell, and ascends the stem, dissolving, in its course, some of the organic matter stored up in the vegetable tissue. Arrived at the green shoots and surfaces of the leaves, which are covered with minute openings, or *stomata*, the sap is exposed to the influence of light, heat, and air. About two-thirds of the moisture taken up is now evaporated and exhaled; the remainder, which, of course, becomes thickened, undergoes certain chemical changes, and then begins to descend by the under-surface of the leaf, and along the bark. It takes either a direct or a circuitous course downwards, communicating with the centre of the stem by the medullary rays, depositing various secretions, more especially in the bark, and giving origin to substances which are destined to nourish and form new tissues. Finally it reaches the extremity of the root, where absorption had commenced; a small portion is there excreted, while the remainder mixes with the newly absorbed fluids, and again circulates in the sap. The circulation of the sap has been adduced as an example of the vital processes elucidated by physiology, because it is due to the combined action of all the organs of nutrition, and may therefore serve instead of several illustrations. The study of the special functions of the various organs necessarily precedes that of the general physiological phenomena, such as circulation, assimilation, respiration, fertilization, and germination. Under the names of the different organs of nutrition and reproduction, the reader will find particulars respecting their functions.

3. SYSTEMATIC BOTANY, OR TAXONOMY.—This department includes the principles of classification, which are based on the observations which have been made on the structure and physiology of plants. It cannot, therefore, be prosecuted successfully until the student has acquired a complete knowledge of Organography. The object of systematic botany is to name, describe, and arrange plants in such a manner that the botanist may readily ascertain the name of any specimen, and, at the same time, get an insight into its true nature and general properties. When it is considered that there are some 120,000 known species of plants, it is obvious that there must be a definite nomenclature and classification, were it only to facilitate reference and communication. Before plants can be classified, their peculiarities of structure must be

clearly defined; hence the necessity of the technical language which is employed in descriptive botany. This language ought not to deter the lover of nature from studying the principles of classification; for, in acquiring a knowledge of the numerous technical terms, he will, at the same time fix in his mind the ideas which they represent, and thus, in reality, become acquainted with important elementary facts. "The technicalities of science," says Mr. Page, "often so ignorantly inveighed against, are, in fact, the instruments by which it effects its progress. New objects require new names, and new facts new phrases to express their relations; and the sooner the student can make himself familiar with those terms and their applications, the more rapid and pleasant will be his onward progress." The principles of classification constitute what is properly called *Taxonomy*, though this term is often applied to the whole department. There have been two great plans proposed for the classification of plants, one denominated artificial, and the other natural. The first is founded on characters taken from certain parts of plants only, without reference to others; while the second takes into account all the parts of plants, and involves the idea of affinity in essential organs. In both artificial and natural systems, the lower divisions—namely, the genera and species—are the same, the great difference between them consisting in the manner in which the genera are grouped into orders, and the orders into classes. The plants in one of the higher divisions of an artificial system, such as that of Linnæus, have no necessary affinity, and are connected only by certain characters, more or less superficial, which have been selected as the signs of that division. In a natural order, on the contrary, all the genera will be found to have a true family likeness; for their association is the result of a careful consideration of the structure of every organ. The classes in the natural system have been formed upon the same principle, by uniting orders which possess many important characters in common. The Linnæan system leads to little more than a knowledge of names, and can only be looked upon as an index to the genera. Though superior to every artificial scheme previously promulgated, its day has gone by, and the more philosophical system has taken its place. Linnæus himself never intended it to be anything more than a provisional arrangement, and distinctly stated that a natural method was the great object of scientific inquiry. The general principles of the Linnæan, or Sexual system, may be explained in a few words. Twenty-four classes are founded on the number, position, relative lengths, and connection of the stamens; while the orders in these classes depend on the number of styles, the nature of the fruit, the number of the stamens in the classes where this character is not used for distinguishing them,

and the perfection of the flowers. The twenty-fourth class includes plants having inconspicuous flowers, and in it the orders are formed according to natural affinities. Under these classes and orders, all the known genera and species are arranged. Even as an artificial method for discovering the names of plants, the Linnæan system has many imperfections. Being based upon the more obvious characters of the reproductive organs, it cannot be of the least use when the plants are not in full flower, with all the stamens and styles perfect. The different flowers on the same plant often vary as regards the number of the stamens. Again, if the classification were carried out rigidly, it would separate, in many instances, the species of the same genus; but so sensible was Linnæus of the importance of maintaining the natural character of his genera, that he sacrificed the symmetry of his scheme for the sake of keeping all the species together.

The natural system of classification is based upon the real characters and affinities of plants, and necessarily takes into account all the organs. Though not perfect, it has already reached a very high point of development; and a great number of the orders which have been determined are quite as natural as the orders in the animal kingdom. In this way a knowledge of one species is to a great extent the knowledge of many; for an individual, if well selected, will exhibit the most important characters of all the other plants in the same natural group. Thus, by studying the common radish or mustard the botanist may obtain a general knowledge of about 1,600 species which constitute the order *Cruciferae*, and which are all formed, as it were, on the same type. The properties of plants accord in a very remarkable manner with their structure; and, as a general rule, the position of a plant in the natural arrangement indicates its properties. For example, if a botanist, on examining a plant, finds all the structural peculiarities of the order just mentioned, he may feel confident that it is not poisonous, but most likely antiscorbutic or pungent. If, however, he should meet with one of the *Atropaceæ*, he might safely set it down as a plant possessing poisonous narcotic properties. It will thus be seen that the natural system is much more than a mere index to the names of plants. It reveals to a certain extent the plan of creation, and is at once an aid to research and a record of discovery. Several schemes based upon the natural affinities of plants have been devised, but they agree in nearly all their grand divisions. The characters by which the primary groups have been determined are furnished by the elementary tissues, and the most important organs of vegetation and reproduction. Regarding only the elementary structure, plants may be arranged under the heads of *Cellular* and *Vascular*, according to the absence or presence of regular vessels. A more satis-

factory arrangement results from a consideration of the different modes by which plants are propagated. Some spring from true seeds, containing the rudimentary organs called cotyledons; while others are developed from spores, in which no distinct organs can be traced. The former are said to be *cotyledonous*, and the latter *acotyledonous* (*i.e.* without cotyledons). As the number of cotyledons forms a natural distinctive character, the first group of plants is subdivided into *monocotyledonous*, having one cotyledon, and *dicotyledonous*, having two cotyledons. The mode in which the root is produced affords characters which confirm this arrangement. The young root of an acotyledon is *heterorhizal*, that of a monocotyledon is *endorhizal*, and that of a dicotyledon is *exorhizal*. (See EMBRYO.) The three groups are further characterized by the stems; those of the first being *acrogenous*, those of the second *endogenous*, and those of the third *exogenous*. Stemless plants are said to be *thallogenous*, and form a distinct section of the acotyledonous group. The venation of the leaves establishes the same great natural divisions; and similar results are obtained from a consideration of the flowers; monocotyledons and dicotyledons being *phanerogamous*, or flowering, and acotyledons *cryptogamous*, or flowerless. The following table exhibits the relation of the different characters:

<i>Embryo.</i>	<i>Radicle.</i>	<i>Stem.</i>	<i>Flower.</i>
Acotyledonous.	Heterorhizal.	Acrogenous.	Cryptogamous.
Monocotyledonous.	Endorhizal.	Endogenous.	} Phanerogamous.
Dicotyledonous.	Exorhizal.	Exogenous.	

4. GEOGRAPHICAL BOTANY treats of the manner in which plants are affected by climate and station, and endeavors to determine the conditions under which particular families or species of plants are confined to certain zones of latitude and altitude. It is a study of great interest, and one which cannot be successfully prosecuted without an intimate acquaintance with physical geography.

5. FOSSIL BOTANY investigates the nature of the plants found in a fossil state in the various geological formations. It is therefore at once a branch of botany and of geology.

The practical bearings of botany are most important, and are sometimes treated separately in manuals of the science, under the head of "Economic Botany." (See various plants under proper headings.)

BOTTLE NURSING. (See CHILD.)

BOUGIE, *boo'-zhe* [Fr.], a surgical instrument, used for overcoming stricture or other obstruction in any of the passages of the body; as the urethra, rectum, œsophagus, etc. It is long and slender in form, solid or hollow, stiff or flexible, according to its particular use, usually varying from one-fourth to one-sixteenth of an inch in diameter. It is made of

various substances, as silver, or steel-plated, caoutchouc, gutta-percha, etc. One kind is also made by dipping a fine cord or thread of flax or silk in melted wax until it has acquired a sufficient thickness, when it is rolled smooth and firm on a marble slab. Bougies require to be employed with skill and caution, as there is always a considerable degree of danger attending their use. If used at all by inexperienced hands, the utmost caution should be observed, as much injury may arise from any hasty or violent efforts to remove the resistance that may present itself: it is rather to be overcome gradually, and by repeated attempts, so as not to excite much pain or irritation. The bougie should be allowed to remain for a few minutes in the passage, and the operation be repeated after an interval of three or more days, gradually increasing the size of the instrument till the canal is restored to its natural calibre.

BOWEL COMPLAINTS. (See AUTUMNAL COMPLAINTS, BILIOUS CHOLERA, DIARRHŒA, DYSENTERY, SUMMER COMPLAINT.)

BOWELS. (See INTESTINES.)

BOWELS, CONSTIPATION OF THE. (See COSTIVENESS.)

BOWELS, INFLAMMATION OF THE. (See ENTERITIS, PERITONITIS.)

BOX. (See BUXUS.)

BOXWOOD. (See CORNUS FLORIDA.)

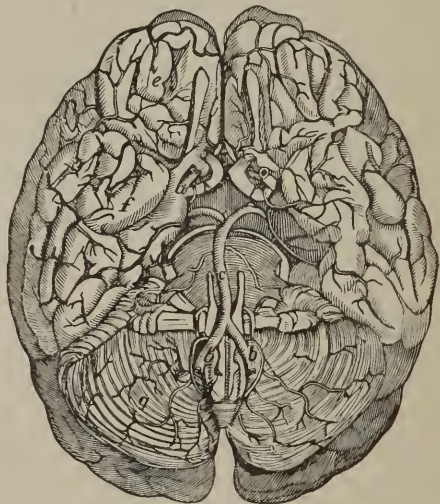
BOYHOOD. (See AGE.)

BRACHIUM. (See ARM.)

BRAIN, *brane* [Ang.-Sax. *brægen*], is the name given to a soft pulpy substance, which in man and the higher orders of animals constitutes one of the great central masses of the nervous system (which see). As was to be expected, it is found most perfectly developed in man, in whom, with its membranes, vessels, and nerves, it constitutes the whole of the matter enclosed within the bones of the skull, and is hence termed the *encephalon*. In males, the average weight of the full-grown human brain is about 49 or 50 ounces; in females, 44. It varies, however, considerably in different individuals, from about 65 to 34 ounces in the male, to 56 to 31 in the female. The brain of the naturalist Cuvier is said to have weighed upwards of 64 ounces, and of that of the late Dr. Abercrombie, 63 ounces avoirdupois. Anatomists differ in opinion as to the size or weight of the brain at different periods of life. Some believe that it attains its full size as early as the third year; others about the seventh or eighth; while not a few are of opinion that it continues to grow until the fortieth year. From a series of observations, however, "it appears that in general the weight of the brain increases rapidly up to the seventh year, then more slowly to between sixteen and twenty, and then more slowly to between thirty-one and forty, at which time it

reaches its maximum point. Beyond that period there appears a slow but progressive diminution in weight of about 1 ounce during each subsequent decennial period.”

The brain is divided by anatomists into the cerebrum, or brain proper; the cerebellum, or little brain; the *pons Varolii*, and *medulla oblongata*. The *cerebrum* occupies the whole of the superior portion of the cavity of the cranium, or skull, and is by much the largest portion of the brain, averaging, in the male, nearly 44, and in the female, about $38\frac{3}{4}$ ounces. The *cerebellum* occupies the lower and back part of the cranium, and is next in size to the cerebrum, weighing, in the male, about $5\frac{1}{4}$, and in the female, $4\frac{3}{4}$ ounces. The *pons Varolii* and *medulla oblongata* occupy the base of the brain, and together average about 1 ounce in weight, being rather larger in the female than in the male. The former occupies a central position on the under surface of the brain, and is connected with the cerebrum by two cords or peduncles, termed *crura cerebri*, with the cerebellum by two similar cords, termed *crura cerebelli*, and is also in contact with the medulla oblongata. This last is that portion of the encephalon which connects it with the spinal cord. It



THE BRAIN. *

is of a pyramidal form, having its broad extremity turned upwards, and connected with the pons Varolii, while its under portion is united with the spinal cord. The brain is covered by three membranes, the outermost of which, from being of a firmer texture than the others, is termed the *dura mater*, and encloses the brain with its appendages, lining also the whole internal surface of the cranium. Its outer surface, which adheres to the bones of the cranium, as the periosteum does to

* The above figure has been introduced to show the manner of supplying the brain with arterial blood by the *vertebral* arteries. It will doubtless be recollected by the critical student, that in the lateral arms of the *vertebræ* of the neck, there were round holes, from one bone to the other. Through those holes an artery creeps securely into the skull, unexposed to the thousand accidents to which the carotid arteries are liable. If, for example, an operation requires that the carotids should be tied, so that no blood can pass in them, a supply for the brain is secured by these *vertebrals*. When they have arrived within the skull, at the under side of the brain, the two marked *b, b*, unite into one, which is *c*, and then branches off among the convolutions of the brain, indicated by the various letters; *g*, is the little brain or *cerebellum*; *f*, the middle lobe of the brain, or *cerebrum*; *e*, the anterior lobe of the *cerebrum*; and *a*, the *optic nerves*, or nerves of vision. This is no fanciful distribution of the arteries of this organ, but perfectly true representation.

the other bones, is rather rough and irregular; but the inner surface is smooth and shining, and is lubricated by a fluid which is secreted by it. This membrane is the densest and strongest of the whole body, its component fibres interlacing each other in all directions. It sends off several folds or processes, which descend between certain portions of the brain. The principal of these is the superior longitudinal process, or *falx cerebri*, as it is termed, from its supposed resemblance to a sickle or scythe, which extends from the fore to the back part of the skull, and, descending into the substance of the brain, divides it into two portions, called the right and left hemispheres. Where it terminates behind, there is a large lateral expansion of the same membrane, extending across the back part of the skull, and separating the cerebrum from the cerebellum; it is called the *tentorium cerebelli*. From the middle of the tentorium another membranous expansion takes its rise, and descending downwards between the lobes of the cerebellum, terminates at the edge of the foramen magnum, or great occipital hole. It is termed the *falx cerebelli*. The second, or middle, of the three membranes is an extremely thin and delicate substance, and from its fancied resemblance to a spider's web, it receives the name of *arachnoid*. It is transparent and colorless, and is spread uniformly over the surface of the brain. The third investing membrane, the *pia mater*, is also very delicate and tender, but differs from the arachnoid in its abounding in blood-vessels, whereas no blood-vessels have yet been discovered in the latter. The blood-vessels with which every part of this delicate membrane is covered are the nutrient arteries of the brain. They subdivide and ramify to an extreme degree upon the surface of this membrane, so that the blood may enter the surface of the brain only in very minute quantities. As the pia matter contains and supports the nutrient vessels of the brain, it is not only, like the others, spread over its entire surface, but it also penetrates between all its convolutions, and lines every cavity which it contains.

The nervous matter of the brain is composed of two distinct substances, differing from each other both in color and consistence. One of these is the *gray* or *cineritious substance*, termed also, where it forms the outer covering, as in the cerebrum and cerebellum, the *cortical substance*, from its surrounding the inner part like the bark of a tree. It is of a softer consistence than the other, and is composed almost entirely of blood-vessels, connected and sustained by exceedingly fine cellular membrane. It forms an outer covering to the entire surface of the cerebrum of generally about one-tenth of an inch in thickness. The *white* or *medullary substance*, which constitutes the internal portion of the cerebrum and cerebellum, is of firmer consistence, and is composed

of microscopic fibres arranged into laminæ and bundles, between which intervening vessels ramify. In the cerebrum these fibres run, in general, in such a direction as to converge towards the base of the brain. The brain proper is divided into two lateral halves, termed hemispheres, separated from each other through a great portion of their extent by the great longitudinal fissure, into which is inserted the falx cerebri. This fissure, both before and behind, passes quite through to the base of the cerebrum; but in the middle it is interrupted by a transverse portion of white substance, termed the *corpus callosum*, which connects together the two hemispheres. Each hemisphere is subdivided into an anterior, middle, and posterior lobe, but it is only on the under surface of the brain that these lobes are properly marked off. The anterior and middle lobes are separated from each other by a deep fissure, named the *fissura sylvia*, which extends obliquely backwards to a considerable depth. The middle and posterior lobes are not so distinctly marked off, but anatomists regard as the posterior lobe that portion of the cerebrum which lies over the cerebellum. The surface of the cerebral hemispheres presents numerous tortuous eminences, named convolutions, or *gyri*, which are separated from each other by deep grooves or furrows, termed *sulci*. These are generally about an inch in depth, but they vary considerably in different brains, and even in different parts of the same brain; and, indeed, those of one side frequently differ from those of the other. The convolutions are more marked as the brain is better developed, and are more numerous and manifest in man than in the lower animals. As the cortical substance of the brain is continuous over the whole surface of the hemispheres, in the fissures as well as upon the convolutions, it follows that the greater the number and depth of these, the greater is the superficial extent of the gray matter which is generally regarded as the seat of all the nervous manifestations, as sensation, volition, etc. The *corpus callosum* is formed by the converging fibres of the two hemispheres, whence it has been termed the *commissura magna*, or the great commissure of the brain. Under the corpus callosum are the two great cavities termed the *lateral ventricles*, distinguished into right and left. They are very irregular in shape, and are described as each consisting of a body and three horns, or *cornua*,—the anterior, posterior, and middle. They are separated from each other by the septum lucidum, which descends from the lower surface of the corpus callosum, and consists of two laminæ, between which is the very small cavity of the septum lucidum. It rests upon the *fornix*, a triangular medullary body, having its apex directed forwards, and its base backwards. Posteriorly it is connected with the corpus callosum, and it divides laterally into a posterior cornu on each side, which termi-

nates in, or rather is continuous with, the *tænia hippocampi*, and the *hippocampus major* and *minor*. The sides of the fornix slightly overlap the optic thalami, while its inferior surface covers the third ventricle, from which it is partly separated by the *velum interpositum*. The third ventricle is a small narrow cavity lying between the *optic thalami*. These last are two large, firm, oblong bodies, nearly an inch and a half long, by three-fourths of an inch wide and deep. Anteriorly the optic thalami are continuous with the corpora striata, and posteriorly they are connected by small peduncles with the pineal gland, and with the nates. The *corpora striata* are two gray pear-shaped bodies, but internally they are streaked with white matter,—whence their name. The *pineal gland* is a small portion of gray matter about the size of a small pea. It was supposed by Descartes to be the seat of the soul. The *corpora quadrigemina* are four small white round bodies, intimately connected with each other, of which the anterior and superior pair are called the *nares*, the posterior and inferior being named the *testes*. The anterior commissure is a medullary band uniting the corpora striata; the middle commissure is composed of gray matter, and connects together the two optic thalami, as does also posteriorly the posterior commissure, which is a rounded white cord. The *crura cerebri* are two short, thick, rounded cords, connecting the optic thalami with the pons Varolii. They are composed principally of medullary matter, but in their interior is a semilunar mass of dark gray matter.

The *cerebellum*, or little brain, consists of a body and three pairs of crura or peduncles, by which it is connected with the rest of the encephalon. It is not covered with convolutions like the cerebrum, but appears to be formed of a number of lamellæ, or plates, with sulci between them. When cut across, the gray and white matter are seen to be arranged somewhat in the form of a tree, the white substance forming the stalks, and the gray the leaves; and hence, it has been termed *arbor vitæ*. The two peduncles of the cerebellum connect it with the testes of the cerebrum, and are known as the *processus e cerebello ad testes*; the inferior peduncles—*processus e cerebello ad medullam*—pass downwards to the back part of the medulla oblongata, and correspond with the restiform bodies; the middle two are the crura cerebelli, which pass from the middle of the cerebellum, round the outer side of the crura cerebri, and meet in front in the pons Varolii, constituting its transverse fibres. The space between the cerebellum behind, and the medulla oblongata in front, is named the *fourth ventricle* of the brain, or the ventricle of the cerebellum. The *pons Varolii*, or annular protuberance, is a comparatively small portion of the brain, and occupies a central position on its under surface, above and in front of the medulla

oblongata, with which it is continuous. It consists of transverse and longitudinal white fibres, interspersed with a quantity of diffused gray matter. The transverse fibres, with few exceptions, communicate with the cerebellum by means of the middle crura; while the longitudinal fibres are those which ascend from the medulla oblongata into the crura cerebri. The *medulla oblongata* is that part of the encephalon which is immediately connected with the upper end of the spinal cord, and has an inclination obliquely downwards and backwards towards the foramen magnum. It is pyramidal in form, tapering towards its connection with the spinal cord. It is marked longitudinally by an anterior and posterior fissure, which are continuous with those of the spinal cord, and by which it is partially divided, like the cord, into two lateral and symmetrical halves. On the upper part, however, a new arrangement takes place; for, on each side of the median line, the lateral fissures disappear, and the surface of each half of the medulla presents four eminences or columns, which, commencing at the anterior fissure, and proceeding backwards each way to the posterior fissure, are met with in the following order: the anterior pyramids, the olivary bodies, the restiform bodies, and the posterior pyramids. From the under part of the brain issue a number of nerves, known as the cranial, and pass through foramina in the base of the skull. They are usually reckoned as forming nine pairs. (See NERVOUS SYSTEM.) The following are the proportions of the different substances that compose the gray and white matter of the brain :

	Gray.	White.
Water.....	85.2	73.0
Albuminous matter.....	7.5	9.9
Colorless fat.....	1.0	13.9
Red fat.....	3.7	0.9
Osmazome and lactates.....	1.4	1.0
Phosphates.....	1.2	1.3
	<hr/>	<hr/>
	100.0	100.0

(See BRAIN, DISEASES OF THE; BRAIN IN OLD AGE, CONCUSSION OF THE BRAIN, WATER ON THE BRAIN, SOFTENING OF THE BRAIN, FRACTURES, ETC.)

BRAIN, DISEASES OF THE. The brain, which is the most delicate and exquisitely formed of all the organs of the human body, is subject to a great variety of disorders, most of which will be treated of under their proper heads, but some it will be necessary to notice here. Inflammation is one of the most common diseases to which the brain is subject, and may result from a number of causes—from external injuries, as blows or falls, the symptoms of which may not manifest themselves for many days; from the improper use of narcotics or stimulants, exposure to the cold or the action of the sun's rays, protracted study,

excessive joy, or other mental emotion; as well as less directly from diseases of the digestive or other organs of the body. It is characterized by more or less violent pain of the head, suffusion or prominence of the eyes, the countenance generally tumid or flushed, and delirium or stupor, with, usually, nausea and vomiting. In the treatment of this disease, general and local bleeding are usually had recourse to; the latter by means of leeches applied about the head, or by cupping. A cooling and sedative medicine should also be employed, and the bowels kept freely open by purgatives. The head is also usually shaved, and kept cool by rags wet with cold or iced water. Frequently, in children, inflammation leads to a form of disease known as water in the head, or hydrocephalus (which see). Softening of the brain is caused by the want of a proper supply of nourishment to the cerebral substance, and may arise from various causes. It is characterized by lowness of spirits, headaches, giddiness, the loss of memory, and at length imbecility and paralysis. Unfortunately, this is a disease which little can be done to remedy, especially when it results from a disordered state of the nutrient organs themselves, as from disease or obstruction in the arteries which convey the blood to the cerebral substance. Frequently it is occasioned by over-anxiety or excessive study; in which case everything is to be done to get rid of the predisposing cause. Every thought, every mental effort, destroys a certain portion of the cerebral matter; and hence, if destruction takes place more rapidly than renewal, a wasting or softening of the brain is the result. The blood-vessels, particularly in the aged, are also liable to be ruptured. (See APOPLEXY, COMA, CONVULSIONS, EPILEPSY, INSANITY, DELIRIUM TREMENS, PARALYSIS, CONCUSSION OF THE BRAIN, WATER ON THE BRAIN, BRAIN IN OLD AGE, FRACTURES, BRAIN, SOFTENING OF THE BRAIN.)

BRAIN FEVER, OR INFLAMMATION OF THE BRAIN. (See BRAIN, DISEASES OF THE.)

BRAIN IN OLD AGE. In the aged the brain becomes more liable disease than heretofore. Congestion of blood from various causes, more especially in consequence of disease of the heart, is frequent, but quite as often, headache, giddiness, slowness of intellect, or paralysis, arise from deficiency of blood in the brain. The distinction is important, as in the latter case lowering measures are certain to be followed by an aggravation of the disorder. Softening of the brain, so frequent a disease of advanced life, has many symptoms similar to those consequent upon deficiency of blood, but in an aggravated degree; the mental functions are more regularly and permanently impaired, paralysis is more certain. Although cerebral softening is incurable, if its threatenings are early detected, it may be retarded by the use of tonics and

abundant nutriment. The arteries of the aged brain lose their elasticity, become brittle and liable to rupture if unduly distended, a fact which renders all excitements, whether of the passions or otherwise, so dangerous to those advanced in life. The other affections of the brain, such as apoplexy, paralysis, delirium tremens, will be found under their respective heads. (See BRAIN, DISEASES OF THE.)

BRAN, *bran*, is the broken-up testa or skin of the grain of wheat, which is separated from the flour after grinding. When heated, it is one of the most useful adjuncts we possess in the alleviation of disease and pain, and particularly in a domestic point of view. It is generally to be procured, is soon made hot, and retains the heat well; it is at the same time soft and adaptable.

Heated bran is best applied in a flannel bag, which should be made ample in size, compared with the part affected; it may be either a dry or a moist application, but the latter is in most cases preferable. The best method of heating, is in the frying-pan, sprinkling with hot water during the process, so as to give just perceptible moisture, and turning over and over until the substance is thoroughly hot throughout; it is to be quickly transferred to the bag, and the latter fastened by pins or thread. When moist, if covered after it is applied to the skin, by a piece of oiled silk, oiled calico, or any other waterproof material, the heat will not only be better retained, but the vapor also, and no dampness will be communicated to the clothes. Sometimes, the bran is put into the bag dry, and the bag and all dipped into boiling water, but in this way too much moisture is absorbed.

Dry, hot bran may produce perspiration, but frequently it causes only feverish dry heat, and if it does not do harm, does little good, compared with the soothing heat and vapor of the moist preparation, which is in fact a continued local vapor-bath, causing free perspiration from the skin over the affected part, and often relieving to an extent sufficient to render the use of leeches or cupping—which would otherwise have been required—uncalled for.

In severe pain, whether spasmodic or inflammatory, the bag of hot moist bran efficiently used, is one of the best, softest, and most certain alleviators we possess; and, greater advantage than all, may be used in most cases of pain with the most perfect safety. In many acute inflammatory affections, such as those of the chest or abdomen, its use is very often preferable, both as regards the comfort and real good of the patient, to either blister or mustard plaster. In the inflammatory affections of childhood, and in threatened croup, it is invaluable from its easy application, soothing, and at the same time, most beneficial effect. When weight is an objection, of course the bag must be more lightly

filled. The bran may be heated in a dry state, and the effects of moisture procured by laying underneath it a double fold of flannel wrung out of hot water. Again it is repeated; the hot bran bag to be efficient, must be sufficiently ample and well filled to retain the heat so long that frequent changing is not required. It must be thoroughly hot, slightly moist, but not wet, and is better covered after it is put to the part by some material which will prevent evaporation.

BRANDY, *bran'-de*, a spiritous liquor, separated from wine by distillation. The word is derived from *brantwein*, a German word signifying *burnt wine*. It is prepared from wine in most wine-growing countries; but France, and, most notably, the town of Cognac, in the Charente, has always been considered the great brandy-producing locality. Cognac brandy is esteemed from the absence of a certain fiery flavor found in other brandies, which is caused by a very small quantity of an acrid oil contained in the skin of the grape. The catawba brandy, made from the lees of catawba wine in Ohio, is a very good brandy, though it has the peculiar flavor of this wine. The wines of California yield brandy abundantly and of good quality. Brandy, when newly distilled is as clear and as colorless as water; but, on being put into oak casks, it acquires a yellowish-brown color, from dissolving a portion of the tannin contained in the wood. This color is generally simulated in inferior kinds by the addition of a small quantity of caramel, or burnt sugar. British brandy, which has been the subject of numerous patents, is an attempt to produce, by factitious means, a spiritous liquor bearing a close resemblance to foreign brandy. The best malt spirit is flavored and colored by various substances, ranging from French plums to oak shavings, each manufacturer having his favorite receipt. The quantity of brandy annually made in France is about twenty million gallons, of which about three million are imported by England. Chemically speaking, brandy consists of spirit of wine colored by tannin or burnt sugar, and flavored by a small quantity of volatile oil that passes over during distillation.

Brandy, like every other ardent spirit, ought not to be freely or regularly used, either diluted or otherwise. Neither should spirit in any form be used, except as a medicine. As an addition to our stimulant medicines, and as a dietetic, it is valuable. In great debility or depression, in advanced stages of fever and the like, brandy is of service. As a medicine, it does not, perhaps, possess any particular advantage over pure spirit of any kind; but in England, it is preferred by most to either whiskey or gin, and it is generally the first procurable stimulant in most cases. In this country good imported liquors being so high-priced, whiskey or American brandies are usually the most reliable, and

most easily procured, but care should be taken to procure them from a reliable dealer. As a dietetic, dyspeptics, and the aged, who require stimulant, and yet cannot take it in other forms, can sometimes use medicinally with benefit a measured quantity of spirit in a little cold water, with their meals, once, or twice a day. But for most people, other stimulants are much preferable, and the habit of some people of resorting to alcoholic liquor for every little ailment, cannot be too much condemned. Spirit in any form should only be used when other stimulants will not produce the desired effect, or when others that will, are not procurable. Alcoholic liquors, like many other curative agents, are poisonous in very large doses. (See ALCOHOL; STIMULANTS, ALCOHOLIC.)

BRASSICA, *bras'-se-ka*, [from *bresic*, the Celtic name of the cabbage], in Botany, a genus of plants belonging to the Nat. order *Cruciferae*, and containing several species, which are commonly cultivated as food for man and cattle. *B. rapa* is the common turnip. The species *B. campestris* is regarded by some as the source of the Swedish turnip; but others consider this vegetable to be a hybrid between *B. campestris* and *B. rapa*, or *napus*. The species *B. oleracea* is supposed to be the common origin of all the different kinds of cabbage, cauliflower, broccoli, and kohl-rabi, the different varieties having been produced by the art of the gardener. Broccoli and cauliflowers are deformed inflorescences; the kohl-rabi is produced by the stem enlarging above the ground into a fleshy knob, resembling a turnip. On comparing the original plant, as found on our shores, with wavy green leaves, no appearance of head, and flowering like wild mustard or charlock, say with the red cabbage or the cauliflower, the difference is astonishing.

BRAYERA, *bra-e'-ra*, in Botany, a genus of plants belonging to the Nat. order *Rosaceæ*, sub-order *Roseæ*. The only interesting species is *B. anthelmintica*, a native of Abyssinia, the flowers of which constitute the drug known as Kousso or Cusso, which has been employed with considerable success for expelling tapeworm. The flowers are apetalous and dicæious, and are imported in a dry state. The mode of administering the Kousso is peculiar. About half an ounce is infused in a glass of warm water, and taken thus, flowers and water together, on an empty stomach.

BREAD, *bred*. The term as usually applied in this country, means the leavened, raised, or fermented loaf of wheaten flour, but may also be appropriate to any of the other forms in which flour or meal is made up, either from wheat or other bread grains. The flour of wheat consists of three ingredients; the gluten which approaches animal matter in composition, starch, and mucilage. Wheat flour, simply made into a cake with water, and baked, like the "damper" of Australia, will

undoubtedly yield nourishment equally as well as leavened bread, to those whose digestion is equal to the task; but for the general purposes of civilized life, leavened bread is much to be preferred for the greater ease with which it is dissolved in the stomach. "The careful mixture with the saliva during the mastication of bread, is a condition essential to the rapid digestion of the starch. Hence the increase of digestibility obtained in bread by the porous form given to it. This porosity and lightness is produced in the dough by a process of fermentation. Yeast is added to the dough, which brings into fermentation the sugar formed by the action of the gluten on the starch; and the open porous texture of the mass is the result of the carbonic acid thus formed in every part of it. Many chemists are of opinion that the flour by the fermentation in the dough, loses somewhat of its nutritious constituents, from a decomposition of the gluten; and it has been proposed to render the dough porous without fermentation, by means of substances, which, when brought into contact, yield carbonic acid." Baron Liebig, from whose "Letters" the above extract is taken, says "this view appears to have little foundation."

Various kinds of "digestive bread," raised without fermentation, are however now used. Carbonate of ammonia has been employed for this purpose; but carbonate of soda, with the addition of some acid—butter-milk will do—to disengage the carbonic acid, is the most general agent. The following method is a good one: 2 drams of carbonate of soda in fine powder, are to be well mixed with $1\frac{1}{2}$ pounds of flour; to rather less than 1 pint of water, there is to be added $2\frac{1}{2}$ drams of muriatic acid, and the water and acid together are to be added to and mixed up with the flour. A rather liquid dough, which must be baked immediately, is formed, and if properly managed, is well and lightly raised by the disengagement of the carbonic acid from the soda, the latter being at the same time converted into common salt by union with the muriatic acid. These various kinds of unfermented bread have been extolled as particularly digestible, it is a question whether they are more so than the ordinary bread which has undergone fermentation. To be thoroughly wholesome, bread must be well raised, well baked, and at least twenty-four hours old before it is used. The finer descriptions of bread made with fine flour, are apt to constipate, and the coarser, which contain much coarse bran, are too irritating for many stomachs. As bread is at present made in this country, that made with seconds flour is quite the most generally wholesome. It is a matter of much importance as regards the nutritive properties of bread, "the staff of life," in what manner the flour from which it is made, is prepared. Generally, in consequence of the very large separation of bran effected in grinding,

in this country at least, a great proportion of the real nutriment is abstracted, and the fine flour which remains has much too large a preponderance of starch, which does not afford real nutriment. This fact was well exemplified by the experiment of Magendie, who fed two dogs on wheaten bread exclusively, but to one he gave that made of fine flour, deprived of bran, to the other the coarse brown bread made of bran and flour together. The former died in forty days, whilst the latter was perfectly healthy at the end of the period. The first dog was in fact starved, in the same way that he would have been if fed upon arrow-root, or sugar alone. The experiment indicates very significantly how much real nutriment is lost by the copious separation of the bran in preparing fine flour. It is not necessary for bran to be coarse: by more thoroughly grinding it into the flour, not only would bread made from the flour be much more nutritious and wholesome, but the actual amount of bread food supplied to the people would be considerably increased. Moreover, the mechanical aperient action of the bran upon the bowels could not fail to be useful in a country where constipation is a general disorder, as it is in this. No one who is liable to habitual constipation should regularly consume fine bread.

Brown bread is made from wheat meal in which the husks have been ground up with the rest of the grain. Sometimes the wheat meal is mixed with rye, barley or oatmeal. Brown bread is considered to be much more nutritious and wholesome than ordinary white bread.

In times of scarcity, bread is liable to adulteration with flour from potatoes, beans, or with rice and other cheap grains. So far as the health of the consumer is concerned, such adulterations cannot be very injurious, and the deleterious additions to flour of plaster-of-Paris, chalk, etc., are now scarcely ever heard of. During times of plenty—like the present—almost the only adulteration of bread, and that chiefly of the lighter and finer kinds, is with alum, indeed, the “‘Lancet’ Sanitary Commission,” in England, recently found this to be the only adulteration practised at the present time by those bakers whose bread they examined. The addition cannot be looked upon as harmless, if for no other reason than the constipating effects it must exert upon the consumers. A certain proportion of bread should form an addition to every meal, with those whose digestion is at all weak. It must not be new; fatal accidents have occurred from the distention of the stomach by an excessive meal of newly-baked bread. Sour bread is, of course, most unwholesome. A great mistake is often made in feeding young infants upon bread in various forms; it always occasions disorder, griping, and flatulence. If circumstances render it necessary that bread must be given, it should, at all events, be slowly toasted or re-baked hard,

throughout, and then well soaked. (See FLOUR, COOKERY FOR THE SICK, FOOD, STARCH; BREAD, AERATED; DIET.)

BREAD, AERATED, *bred, a'-e-ra-ted*. There exist in most of our large towns manufactories for the production of this form of bread. Being very light, it is in many respects a wholesome and agreeable article of diet, and is found to agree better with some persons than bread made in the ordinary way. The chief objection brought against it is a tendency to become disagreeably dry.

The process for aerated bread, which was first proposed by Dr. Daughlish, consists in preparing the dough with water which has been fully impregnated with carbonic acid gas. This is done under pressure in air-tight receptacles, and when the pressure is removed, of course, the gas expands the dough which it has been the means of forming; in fact, the dough effervesces, and the "sponge," as the dough is called, in this case is formed instantaneously, instead of, as under the old mode, by the slow extrication of carbonic acid gas, formed at the expense of a portion of the flour, which was thus altogether lost.

Bread made in the usual way, with yeast or leaven, has the first principles of fermentation, decomposition, and putrescence commenced in it, and when taken into a stomach in which, from disease or the weakness of infancy, the gastric juices are not sufficiently powerful to arrest the fermentive process, it becomes a source of discomfort, flatulence, diarrhœa, etc. On the contrary, the aerated bread, being vesiculated or lightened by the mechanical action of the fixed air or carbonic acid gas, has none of the putrefactive elements in its composition. It is therefore easily digested and assimilated, and may even be eaten quite new by the dyspeptic without his feeling any of the discomfort which new leavened bread generally produces on all but the most vigorous stomachs.

The aerated bread has a like salutary effect on infants when they are obliged to be brought up wholly or partially by hand. The aerated bread forms a soft, jelly-like compound, when mixed with milk and water, which is easily sucked through the tube of a common feeding-bottle, and with a little fine sugar makes a food of which infants grow very fond.

It may be stated that it is more economical to bake bread at home, provided the flour can be obtained of the best quality, and the baking arrangements are such as to secure the production of good bread on every occasion.

Brown bread, now so largely used, especially by those of a costive habit of body, is made of wheat flour ground coarsely, and wholly or partially left dressed, or of a mixture of this with rye, barley or oat-meal. (See BREAD, FOOD.)

BREAD, BROWN. (See BREAD; BREAD, AERATED.)

BREAD POULTICE, *bred pŏl'-tis*, is thus directed to be made: Put $\frac{1}{2}$ pint of water into a basin, add as much crumb of bread as the water will cover, then place a plate over the basin and let it remain for about ten minutes. Stir the bread about in the water, or if necessary, chop it a little with a knife, and drain off the water by holding the knife on the top of the basin, but do not press the bread; then take it out lightly and spread it about a third of an inch thick on some linen, and lay it on the part. It is an excellent application to burns, scalds, excoriations, ulcers, abscesses, etc. (See POULTICE.)

BREAKFAST, *brek'-fast*, the first morning meal, is to the strong and healthy a most enjoyable one, and it may always be taken as one of the best signs of health when a man can eat and digest a good breakfast, especially after exercise. The circumstance that the strong and healthy can enjoy with impunity a full breakfast, has given an erroneous idea as to the advisability of invalids making it a hearty meal, and still worse, of prefacing it by exercise. With very many, perhaps the majority of people in this country, especially in towns, the interval between rising and breakfast is not one of great vigor; the powers both of body and mind are undoubtedly recruited if there has been due rest, but they are not in full action, and if, injudiciously, too long an interval is permitted to elapse before food is taken, they become exhausted, and still more so if physical exertion is engaged in. Instead of, as is too frequently supposed, the exertion improving the digestive power, it weakens it; appetite there may be, but digestion will, in a weak individual, be sadly deficient; the nervous power which should aid the process, has been used up. The very same deficiency of nervous power renders a full breakfast, under any circumstances, inadmissible for those of weak digestion; instead of giving strength, it causes discomfort and inaptitude for business for the first hours of the forenoon. Thus it is, why it speaks well for the health and constitution of the individual who can make the first meal of the morning a hearty one.

It would, perhaps, be difficult to find a custom more suited to the present state of civilized life, than warm tea, coffee, or cocoa to breakfast, taken along with bread, and if it agrees, with the addition of meat, fish, or egg; it just affords the gentle stimulation which the system requires. The amount and nature of the nourishment taken at breakfast must vary, of course, with the habits and powers of the individual; if digestion is weak, it is better to be content with little, and wait for an early luncheon. Some dyspeptics can scarcely take any kind of food at the morning meal without its disagreeing; such will sometimes find it of advantage, when it can be done, to have a small cup of hot coffee, or of

some warm fluid, brought to them just before rising; with others, a very light supper, just before going to bed, a soda biscuit or piece of toast, and where much debility exists, a little wine and water with soda biscuit before retiring, will relieve the weakness in the morning. Above all, it should be kept in mind by those with whom breakfast is apt to disagree, that exhaustion of any kind before the meal, such as walking, gardening, bathing, or even cold sponging, are almost certainly injurious. As a breakfast for children, bread and milk is better than the stimulants, tea and coffee; for strong children, nothing is better than oatmeal porridge, as used in Scotland and northern England. (See DIGESTION, DYSPESIA, FOOD, REGIMEN, DIET, COOKERY FOR THE SICK, MEALS, LUNCHEON, DINNER, SUPPER.)

BREAST, *breſt* [Sax. *breost*], in Anatomy, is a term applied to the whole of the anterior part of the thorax. In a more restricted sense it is applied to the two globular fleshy protuberances adhering to the anterior and internal regions of the thorax of females, and containing the mammary or lacteal glands. On the middle of each breast is a projecting portion termed the *papilla* or nipple, in which the excretory ducts of the glands terminate, and around which is a colored orb or disc called the *areola*. The use of the breasts is to secrete milk for the nourishment of the newly-born infant. They are composed of common integuments and adipose tissue, in which are lodged numerous ducts radiating from the nipple, and afterwards dividing and subdividing into branches and twigs until they terminate in very minute vessels. The enlargement of the breast is one of the signs of womanhood. Their fullest development commences in the earlier stages of pregnancy, and they continue to increase in size until about the time of delivery, when they are filled with the lacteal fluid, which passes readily on suction into the mouth of the child.

Diseases.—The breasts of females are subject to a variety of disorders, one of the most common of which is inflammation. It may be produced by various causes, as a blow, exposure to cold or wet, great mental excitement, excessive accumulation of milk, or undue pressure on the parts. It occurs most frequently within the first three months after parturition, and is characterized by great heat, pain, redness, and swelling of the breasts. The pain is intense, and of a throbbing nature, and often extends to the axillary glands. The breasts become tense, heavy, and painful to the touch; and there is high inflammatory fever.

Treatment.—The treatment consists in the application of leeches and warm fomentations to the part, and the administration of purgatives. If the inflammation do not subside in a few days, suppuration may be expected. In general, the abscess may be left to nature; but when it

occasions much pain, it is advisable to get rid of it by a free incision. Chronic inflammation sometimes seats in the breast, in which case stimulant applications will be found useful. Where this is attended with abscess, it should be opened, so as to give free exit to the pus, and pressure applied to the part. The breast is also subject to various kinds of tumors, some of which may be got rid of by simple pressure, and attendance to the general health. When large or painful, a few leeches may be applied, or a belladonna plaster. Cinchona bark, with iodide of potassium, is useful in restoring the general health. Some of these tumors very much resemble cancer, and, doubtless, many of the cures of cancer that we see advertised by quacks are simply tumors of this class. In general it is not necessary, and may be highly injudicious, to extirpate these tumors. In many cases they remain stationary after reaching a certain stage; in others, they, after a time, disappear. Sometimes some of the lactiferous ducts are blocked up, producing an enlargement termed *acteal tumor*. It is to be remedied by puncturing the duct, and keeping it open for some time. Occasionally great pain and uneasiness are felt in the breast from sympathy with other parts of the system. There is no inflammation, swelling, or external alteration of the breast, and yet the pain is sometimes excessive, usually intermittent. In this case the general health is chiefly to be looked after. Women are frequently subject to sore nipples after childbirth, occasioning great pain. In such cases care is to be taken to keep the nipples as dry as possible, and an application of glycerine is generally found useful. Nipple-shields of ivory or glass, with india-rubber teats, should also be used when the nipples are too tender to bear the application of the child's mouth. For cancer of the breast, refer to CANCER. (See NIPPLES.)

BREAST-BONE. (See STERNUM.)

BREAST PANG, OR ANGINA PECTORIS. (See ANGINA PECTORIS.)

BREATH, *breth* [Sax. *breath*], is the air which is inhaled and expelled in respiration. (See RESPIRATION.) Much can be gathered by the skilful physician as to the condition of the internal organs from the manner of breathing—if it be short and rapid, slow and labored, painful, etc. Fetid, or offensive breath, to which some people are subject, may arise from a variety of causes, and is to be treated in as many different ways. Sometimes it is owing to a deranged state of the digestive organs, and in this case purgatives and tonics are to be administered. Occasionally it arises from a diseased condition of parts about the mouth and nose, as decayed teeth, or morbid secretions about the tonsils. In such cases, the teeth should be frequently cleaned, and the mouth should be washed with a weak solution of chloride of lime, or

soda, or what is better, a solution of chlorate of potash, 1 ounce to a pint of water. Inhalation of steam from hot water, into which some creosote has been dropped, is recommended in cases in which the cause resides in the nose and respiratory passages. The injection of a lotion of sulphate of zinc or copper, by means of a syringe, into the nostrils will frequently be of use when the disorder has its seat there. (See OZÆNA.) Fetid breath may also arise from a diseased state of the lungs. Where it cannot be remedied, it will be well for the patient to chew a little cinnamon occasionally, or take some of the aromatic pills prepared for the purpose. (See DYSPEPSIA, TEETH.)

BRIGHT'S DISEASE, OR GRANULAR DISEASE OF THE KIDNEYS, *brites diz-eez'*, [*Albuminuria*]. Bright's disease, or granular disease of the kidneys, is a particular disease of the kidneys, named after the late Dr. Bright, who first pointed out its nature and character in 1837.

Causes.—This disease may be occasioned by severe cold, repressed perspiration, or immoderate use of ardent spirits; and it not uncommonly follows scarlet fever. It may likewise be hereditary.

Symptoms.—It is characterized by gradually increasing debility, with shortness of breath, headache, drowsiness, pallor, and usually puffiness of the face, a frequent disposition to make water, dyspepsia, flatulent distension, with attacks of nausea and vomiting. There is also a remarkable tendency in this disease to an inflammatory or congestive state of other important organs; and hence bronchitis, phthisis, coma, convulsions or apoplexy, not unfrequently occur during its progress. The heart, too, may become implicated, and dropsy almost always occurs sooner or later. It essentially consists in a degeneration of the tissues of the kidneys into fat, by which their secreting powers are impaired, and the urea which should be separated from the blood is retained, while the albumen, which is the great agent of nutrition in the system, passes off in the urine. Hence, the existence of albumen in the urine is the distinguishing characteristic of this disease, and is readily detected by its coagulating on the application of heat. Healthy urine contains no albumen; hence, the blood in this disease is poor, thin, and watery, containing much less albumen and fewer red corpuscles than in health. Indeed, there is no disease that so closely approaches hæmorrhage in its powers of impoverishing the blood, and exhausting its red corpuscles. Hence arises that peculiar aspect which so strongly characterizes this complaint. Besides this impoverishment of the blood from the impaired action of the kidneys, it retains more or less of its urinous excrement, and at length the body is poisoned by the retention of its own excrement.

Treatment.—In the treatment of this disease the diet should be well regulated, and intoxicating drinks, sugar, starch, and fatty substances, abstained from. The secretive action of the skin should be promoted by means of the warm bath, warm clothing, warm atmosphere, and diaphoretics, as Dover's powder. Flannel should be worn next the skin, and exercise, change of air, and sea voyages, are recommended. Cupping over the loins and warm fomentations are useful in counteracting the more acute forms of this disease. It is necessary also to stimulate the action of the kidneys by diuretics, the most valuable of which is said to be the bitartrate of potass, or cream of tartar. The bowels should be kept in a relaxed state by the frequent administration of aperients. (See MICROSCOPE.)

BRIMSTONE. (See SULPHUR.)

BROCCOLI, *brok'-o-le*, [Ital., sprouts], the name given to one of the many cultivated varieties of the *Brassica aleracea*. It is a common garden vegetable, and differs from the cauliflower only in having colored instead of white heads. (See BRASSICA.)

BROILING, *broil'-ing*, is, perhaps, the most primitive method of cooking; the savage puts his piece of flesh or his fish upon the burning coals and broils it. In civilized life, the gridiron is made the medium for the process. The principle involved in broiling is, that by sudden exposure to the fire, the outer portions of the meat are so hardened that they retain the juices of the inner, during the process of cooking. This is still more fully effected, by brushing over the surface of the meat with white of egg before putting on the fire. Broiling is not so well adapted for weak stomachs as either roasting or boiling; but meat cooked in this way is very nutritious. (See BOILING, ROASTING.)

BROKEN BONES. (See FRACTURES.)

BROMIC ACID, *bro'-mik*, symbol BrO_3 , equivalent 120, the only known compound of bromine and oxygen. It corresponds in composition to chloric acid, but has never been obtained in an anhydrous condition. In combination with water it forms a colorless liquid, which first reddens and then bleaches litmus. With bases it forms bromates, which are similar in their properties to chlorates.

BROMIDE OF POTASSIUM. (See POTASSIUM.)

BROMINE, *bro'-mine*, [Gr. *bromos*, a stench], symbol Br, equivalent 80, specific gravity 2.966. Bromine is an elementary substance, consisting of a heavy mobile fluid of a deep brownish-red color. It was discovered in 1826, by Balard, in minute quantities in sea-water, in which it exists as bromide of magnesium. It also occurs in a native bromide of silver found in Chili, and in union with various alkalies in certain mineral waters. When exposed to the air, it volatilizes rapidly,

and boils at 145° Fahr. Its smell is disagreeably pungent, giving rise to a painful spasm of the glottis, if breathed. It acts energetically on the skin, producing a sore immediately on contact. At 7° Fahr. it solidifies into a yellowish-brown crystalline mass. Bromine is the only element that is liquid at ordinary temperatures, except mercury. The properties of bromine resemble those of chlorine; but they are somewhat less strongly developed. It bleaches vegetable color, and is a non-supporter of combustion. It is slightly soluble in water, giving to it a yellow color. It combines with water and forms a hydrate, which crystallizes at 32° Fahr. The principle compounds of bromine are hydrobromic acid, a compound of one equivalent each of hydrogen and bromine. With oxygen, bromine forms only one compound, bromic acid. With chlorine, bromine forms a chloride, a reddish-yellow volatile liquid, soluble in water, and possessing bleaching properties. Bromide of potassium is used in medicine, being similar in its action to iodide of potassium. It is given in enlargement of the spleen and liver, and swellings of the lymphatic glands. It is also said to possess peculiar narcotic and anæsthetic powers, and is used in hysteria, epilepsy, etc. Dose, 5 to 30 grains, three times a day.

BROMO-CHLORALUM, *bro'-mo-klo'-ra-lum*, is a concentrated solution of aluminium chloride and bromide, is inodorous and nonpoisonous, a deodorizer and disinfectant, and is entirely harmless and safe. In contact with fermented, decomposed or fetid matter, it promptly absorbs and decomposes all ammoniacal and noxious gases, and renders the atmosphere and surrounding objects sweet and wholesome.

A striking merit of bromo-chloralum is that it operates by removal and not by creating an odor greater than the one sought to be removed, and can be applied in the most simple manner, diluting it according to the object or locality to be purified. Indeed, one great element of its successful operation is the capacity of free diffusion, causing it to affect and purify the air as well as the walls, ceilings and floors.

In small-pox, patients feel much comfort from the use of a dilution of 1 part to 12 or 16 of water as a wash; it seems to lessen the itching, and cools them nicely by neutralizing the poison. Cloths well moistened and hung in the room and around the patient, absorb all the odor present in such cases, and prevent contagion. Attendants should wash themselves with a dilution, and also use a similar dilution as a wash for the mouth and throat.

In typhoid and scarlet fever, and all contagious diseases, use 1 part to 6 or 10 of water as a wash to neutralize fever poison. Saturate cloths and suspend in the room; use freely on all bedding and in the chamber utensils.

For diphtheria and sore throat, use as a gargle, 1 part to 10 of water, or stronger according to circumstances. For hospital use, also, it has been proven very useful for various purposes, among others, as a wash for offensive sores and ulcers, sloughing gangrene, cancers and offensive discharges of all kinds; also for disinfecting clothes and bed clothing, bedding, and for general deodorant and disinfecting purposes. In the sick chamber it can be used with perfect safety—when the air is impregnated with the unwholesome odors which the patient is obliged to repeatedly inhale, cloths wet with a dilution of 1 part to 8, should be suspended in the room to absorb the noxious odors. A small quantity should be placed in all chamber utensils, before use, diluted 1 part to 8 of water. It will deodorize and disinfect instantly and completely—thus preventing all danger of contagion therefrom. It has also proven effective in preserving a corpse beyond the time they can ordinarily be kept, even in cool weather. Two or three folds of cloth laid over the face, or any part of the body, and kept moist, will prevent any noticeable change for several days, and preserve the features in a remarkable manner. By injecting it undiluted, immediately after death, in the various orifices of the body and then closing them with cotton, it will act as a thorough antiseptic, rendering the use of ice to preserve the body until burial unnecessary.

For all sanitary purposes, whether in private families or for hygienic public uses, it is unsurpassed in efficacy. The great advantage it has over other preparations designed for the same purposes is, that while its efficacy is greater, the objections to it are less, on account of its non-irritating, non-corrosive, and odorless qualities. Bromo-chloralum works by diffusion and contact; the dilution should in all cases be 1 part to 6 of water. (See DISINFECTANTS.)

BRONCHI, *bron'-ki*, [Gr. *branchos*; the windpipe], the name given to the subdivisions of the trachea, or windpipe, which proceed to the lungs. The trachea divides into the two bronchi opposite the third dorsal vertebra. The right bronchus is larger than the left, and is shorter, reaching the lung on a line with the fourth dorsal vertebra. The left bronchus passes under the arch of the aorta. The structure of the bronchi is similar to that of the trachea, being round and cartilaginous in front, and fat, with muscular and fibrous tissue, behind. On entering the substance of a lung, the bronchi divide and subdivide into numerous branches, till they terminate in very minute air-cells.

BRONCHITIS, ACUTE, *bron-ki'-tis*. Bronchitis is inflammation of the membrane lining the air tubes, or bronchi. It is one of the most common diseases of this climate. Like all the inflammatory affections of the mucous membrane of the air passages, the disease is very easily

excited in most persons ; while there are certain individuals who manifest an unusual, some an extreme susceptibility, to become affected by it. The periods of life most obnoxious to bronchitis are childhood, adolescence, and old age, and though it does occur at all ages, the constitutional vigor of adult life appears, from time to time, to act in enabling the individual to resist the invasion of the disease. No disease varies more in its degrees of severity than bronchitis; it may assume a very simple and easily manageable form, and on the other hand, it may appear as a very formidable ailment, showing little amenability to treatment; in early and very advanced life it is most apt to assume this severe character.

Causes.—Acute bronchitis may be brought on by the action of cold, by the inhalation of chemical and mechanical irritants, by the obstruction offered to the circulation by disease of the heart, and it occurs in many cases in which there is some morbid condition of the blood, as in the course of Bright's disease, typhus and typhoid fevers, measles, scarlatina, and small-pox. It is very fatal to old people and young children.

Symptoms.—It usually affects both lungs and their lower parts, it is attended with chilliness, sore throat, hoarseness, shivering, constriction and tightness across the chest, harassing cough with expectoration in the earlier stage of a thin, frothy, serous fluid, and in the latter of a more opaque, yellow, viscid, puriform secretion, which is generally more or less streaked with blood. The breathing is short, difficult, and laborious, the skin is hot, the pulse quick, and there is headache, and a general feeling of lassitude; this disease, although much more serious in its nature than catarrh, runs through exactly the same phases as that affection is described as doing. The aid of a medical man should be sought early in this disease, as it often runs a very rapid course, and he will be able by his stethoscope and a well-trained ear, to diagnose the exact stage at which the disease has arrived, and to prescribe remedies accordingly.

Treatment.—The rapid progress which this disease sometimes makes, from its commencement to a fatal termination, renders the sending for medical assistance as quickly as possible, an imperative duty; but the same reason renders it important that those around should be aware of the best method of treatment. Confinement to bed is a matter of course; but foot-baths, hot bran poultices to the chest, and warm diluent drinks, are all serviceable. In a person of full habit, from eight to twelve leeches may be applied to the chest, or five or six ounces of blood taken from between the shoulders by cupping; but the chief dependence is to be placed upon nauseant medicines, and ipecacuanha is the best

and safest; 4 grains should be given in a little water every twenty minutes, till free vomiting is produced. The skin and mucous membrane of the affected tubes should be acted upon as soon as possible, and this may be accomplished by the following:

Take of Tartar emetic.....	Two grains.
Nitrate of potash.....	Half a dram.
Bicarbonate of potash.....	One dram.
Pure water.....	Eight ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every three or four hours.

After the action of the emetic, the bowels should be relieved by the administration of a large tablespoonful of castor-oil. In the event of symptoms of collapse, or sinking coming on before the arrival of medical assistance, it will be necessary to stop the nauseating treatment, and to give stimulants, such as 5 grains of carbonate of ammonia, in 3 tablespoonfuls of water, every half hour or hour; or 1 teaspoonful of sal-volatile may be given instead, in the same quantity of water, and at the same intervals. If these stimuli are not to be procured, the most readily obtainable alcoholic stimulant must be substituted; but ammonia is always preferable; the strength must at the same time be sustained by tablespoonfuls of strong meat broth frequently given. When the urgency of the attack has yielded under the use of the nauseant and emetic systems, the severity of the treatment may be relaxed, and the following substituted:

Take of Powdered ipecac	Five grains.
Spirit of mindererus.....	One and a half ounces.
Carbonate of potash.....	One dram.
Pure water.....	Six and a half ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every four hours.

When there is much accumulation of secretion in the lungs, and the breathing is very laborious, an emetic of sulphate of zinc will be found useful:

Take of Sulphate of zinc.....	Twenty grains.
Water	Two ounces.— <i>Mix.</i>

Stimulants in the form of brandy and wine will be necessary, and the patient's strength must be nurtured by strong beef-tea, given every hour or two.

When the disease is still further advanced, and the patient is bathed in profuse perspiration, and the viscid secretion is discharged in large quantities, the following will be found useful:

Take of Sulphate of iron.....	Fifteen grains.
Sulphate of quinine.....	Twenty grains.
Dilute sulphuric acid.....	One and a half drams.
Pure water.....	Half a pint.— <i>Mix.</i>

Give 2 tablespoonfuls every four hours.

Opium must be given with great caution in this disease, for in severe cases respiration is but imperfectly performed, and the patient is partially narcotized by the retention of carbonic acid in the system, and by the addition to this of the soporific influence of the drug, he may be sent into a deep sleep from which he may never awake. When the lips and cheeks are blue, on account of the circulation of improperly oxygenized blood, it ought on no account to be given.

The acute bronchitis of children is not usually so rapid and strongly marked a disease as that just described; it often begins with the irritation of the membrane of the nose and eyes, and extends itself into the chest. Languor, succeeded by fever, oppressed and quickened respiration, and cough, are the usual symptoms. If these set in severely, from one to four leeches, according to the age of the child, may in an early stage of the disease be applied to the chest; but here, as in the adult, the chief dependence must be on ipecacuanha, $\frac{1}{2}$ a grain to 1 grain, or more; or syrup of ipecac, $\frac{1}{2}$ to 1 teaspoonful doses, frequently repeated so as to cause occasional vomiting. Bran poultices ought to be used to the chest. The warm bath may be useful in the first stage of depression; but when fever is high, it is not advisable. If the child is unweaned, it must not be allowed to suck, either from the breast or bottle, during a severe attack of bronchitis, but ought to be fed with the breast milk, or its usual food, by means of a spoon. The bowels, of course, will require attention. It is of the greatest importance to attend to the atmosphere surrounding either child or adult suffering from bronchitis; the chamber should be well ventilated, and the temperature not suffered to fall below 55° Fahr. In the latter stages of infantile bronchitis, a small blister about the size of half a dollar, applied for a few hours to the fore part of the chest, may give relief. Bronchitis in children is so hazardous, and frequently fatal a disease, that its domestic treatment ought never to be undertaken, except under necessity. Its exciting cause is almost invariably cold and moisture, particularly during the prevalence of east wind in the spring months; whilst careless and insufficient clothing amongst the poor, and absurd modes of dressing amid the higher classes, render children more susceptible of these injurious influences.

The bronchitic attacks of the aged are always to be regarded with serious attention; what in youth might be but a slight cold, may now be a fatal disease; this arises partly from the viscid nature of the secreted mucus, but more especially from the inability of persons advanced in life to expectorate it; accumulation of phlegm takes place in the bronchial tubes, the oxygenation of the blood is interfered with, torpidity of the vital functions ensues, and adds to the already existing inability to free the lungs, and death quickly takes place, often unexpectedly sudden.

For the above reasons, colds in old people must always be watched; all lowering measures must be avoided, the diet kept nourishing, and the medicines be stimulant expectorants. Opium should not be ventured on without medical sanction; the compound squill pill in doses of 5 grains every six hours, is useful. Camphor, in the form of julep, carbonate of ammonia, in 5 grain doses, and sal-volatile, in $\frac{1}{2}$ teaspoonful doses, are frequently required. The inhalation of steam will assist the expectoration of viscid mucus. (See BRONCHITIS; CHRONIC; CATARRH OR COMMON COLD, STETHOSCOPE, BRAN, CUPPING, IPECACUANHA, ETC.)

BRONCHITIS, CHRONIC. Chronic inflammation of the bronchial tubes is very common in persons advanced in years, it is often a sequel of the acute form, but seldom follows the first attack, the patient having in all probability had attacks of cough and catarrh during several preceding winters. In the summer time he is, comparatively speaking, well, suffering only from shortness of breath. It is accompanied by habitual cough, difficult respiration, and expectoration of a scanty, viscid, gray, frothy secretion, sometimes streaked with blood, or it may be viscid, yellow, opaque, and purulent.

Causes.—It is often the result of exposure to cold, intemperate habits, and unhealthy employment, such as manufacturing needles, pottery, and cutlery, which give rise to the diffusion of dust and grit through the air, which being brought into contact with the mucous membrane give rise to inflammation, and all the above detailed symptoms of chronic bronchitis. In some few cases it is the result of disease in the organs of circulation.

Treatment.—Chronic bronchitis must be treated by stimulating expectorants.

Take of Carbonate of ammonia.....Sixteen grains.
Decoction of senegalEight ounces.—*Mix.*

Let 2 tablespoonfuls be taken three times a day. Or,

Take of Compound tincture of benzoin....Three drams.
Carbonate of ammonia.....Eighteen grains.
Mucilage of gum Arabic.....Six ounces.—*Mix.*

Let 2 tablespoonfuls be taken every six hours.

In some cases in which the patient is much debilitated, tonics are needed.

Take of Ammonia-citrate of iron.....One dram.
Compound spirits of ammonia....One and a half drams.
Pure water.....Eight ounces.—*Mix.*

Let 2 tablespoonfuls be taken three times a day.

If the secretion from the inflamed tubes be profuse, sulphate of iron with dilute sulphuric acid should be given.

Take of Sulphate of iron.....	Fifteen grains.
Sulphate of quinine.....	Twelve grains.
Dilute sulphuric acid.....	One dram.
Distilled water.....	Half a pint.— <i>Mix</i>

Let 2 tablespoonfuls be taken three times a day.

His diet must be liberal, and if much depression be present wine and brandy should be freely given. Urgent symptoms may be relieved by the application of mustard poultices, turpentine fomentations, blisters, or dry cupping to the chest.

Preventive treatment.—This consists in protection of the skin generally, particularly that of the chest; flannel worn next it, being the most important. The feet are to be well protected from damp and cold by thick, cork-soled shoes; warming the air before its reception into the lungs, by means of one of the various respirators now in use, is a very wise precaution on the part of those in whom the tendency is toward this form of disease. The slightest cold should be promptly attended to, as many a serious and fatal case of bronchitis has had its origin in that trivial thing, a “cold in the head.” A damp atmosphere, night air, easterly winds, indigestible food, and costive bowels, are the natural enemies of the person disposed to bronchitis. People with this tendency, whose occupation leads them where they necessarily inhale dust or hot irritating gases, if they wish to prolong their days, should at once change their mode of living, or if this is not possible, guard against trouble by constantly wearing a respirator. (See BRONCHITIS, ACUTE; CUPPING, CATARRH OR COMMON COLD, RESPIRATION.)

BRONCHOCELE. (See GOITRE.)

BRONCHOPHONY, *bron-kof'-o-ne*. The sound of the voice as heard by applying the stethoscope over a large bronchial tube. (See AUSCULTATION.)

BRONCHOTOMY. (See TRACHEOTOMY.)

BRONZED SKIN. (See ADDISON'S DISEASE.)

BROOM. (See CYTISUS SCOPARIUS.)

BROTH, *brawth*, is the decoction obtained from animal substances, and, when made for the sick, must, of course, be varied in strength, according to the state of the patient. It is best made by putting the article from which it is to be formed into the quantity of cold water requisite, and keeping the whole at a heat somewhat short of boiling, for many hours; it should then be allowed to become cold and the fat skimmed off. In cases of diarrhœa, broth, in quantity, is apt to increase the tendency, but it is at the same time extremely beneficial, if properly

managed ; in such cases, it is best made from veal or fowl, and thickened with rice—which may be strained off—and gelatine ; and it must be given in small quantities only at a time. In Scotland, by broth is meant the decoction from meat, boiled with pearl barley, and a good proportion of vegetables ; it is a much used and wholesome article of diet, and might, with advantage, form an addition to the fare of Americans. To be wholesome it must be thoroughly boiled. (See BEEF, BEEF-TEA, MUTTON, VEAL, POULTRY, ETC.)

BROW AGUE. (See HEMICRANIA.)

BRUCIA, OR BRUCINE, *broo'-she-q*, an alkaloid occurring in large quantities in conjunction with strychnia in the *strychnos nux vomica*. It is less marked in its properties than strychnia, which it closely resembles. It crystallizes in colorless, transparent, rhombic prisms, which are insoluble in ether. Its poisonous properties are less active than those of strychnia. (See STRYCHNIA, STRYCHNOS NUX VOMICA.)

BRUCINE. (See BRUCIA.)

BRUISES AND CONTUSIONS, *brooz'-ez and kon-tu'-zhunz*, are the effects of external violence applied to the body, and may be simple, or complicated with wounds of the skin. The effects of bruises depend of course, greatly, upon their situation, and the possibility of the violence which produced them having injured important parts, this being more likely to happen when the contusion affects the head, neck, or trunk. The first effect of a bruise, is to cause effusion of blood, more or less, within the textures injured ; on the head this is very evident from the large tumor which will often rise immediately after a blow ;—a black eye renders the effused blood visible. Blood effused, as the result of a bruise, does not remain in one spot, but diffuses itself through the loose surrounding textures, and causes discolorations to appear at a distance from the bruise, days after the receipt of the injury. The changes in color, from black or blue to greenish yellow, etc., which take place during the recovery after a bruise, and which are probably caused by the mode of absorption of the effused blood, are too well known to require description. After bruises of the abdomen, particular attention should be directed to detect the occurrence of blood, either in the stools or urine ; if a medical man is called in, it is highly important for him to have information on these points. In bruises of the surface generally, the best and most agreeable application is lint soaked in cold water, or in a cold lotion made with $\frac{1}{2}$ an ounce of tincture of arnica to the pint of water. After the lapse of five or six hours, hot applications—poultices—will be most required. If heat be used too soon, it may tend to increase the effusion of blood, which the cold checks. The same treatment may be followed, whether the bruise is simple, or complicated with

a wound. It is a frequent error, popularly, to apply leeches immediately after a bruise, when they cannot possibly be of service; they cannot remove the blood which is effused, and are only useful in the event of inflammation succeeding the injury. After pain and inflammation, in a bruise, have subsided, simple water-dressing may be substituted for the poultices for a few days, and after that, should discolored swelling remain, friction with soap-liniment will hasten its removal. A severe bruise may run on to the formation of an abscess, or end in mortification of the part. In either case, the effect is known by the supervention of the usual symptoms attendant on these processes, and must be treated accordingly. Severe bruise of a bone is liable to be followed by death and separation of the injured part. For a slight bruise, as a black eye, the application of a little whiskey, brandy, or spirits of wine, will often prevent the effusion of blood or discoloration. (See ABSCESS, CONCUSSION, MORTIFICATION, WOUNDS, ACCIDENTS.)

BRYONIA, *bri-o'-ne-a*, [Gr. *bruo*, I sprout], in Botany, a genus of plants belonging to the Nat. order *Cucurbitaceæ*. The most interesting species is *B. dioica*, the red-berried bryony, or wild vine, a perennial, growing in hedges and thickets, and blossoming during the month of May. The flowers are yellowish-white, with green streaks, and are diœcious; that is, the male and female flowers are borne by distinct plants. The stems are put forth annually, and climb by means of tendrils. The root is large, white, and is sold by herbalists under the name of white bryony and mandrake-root. The root contains a peculiar bitter principle, termed *Bryonin*. It is a violent emetic and purgative, and is highly poisonous, giving rise to symptoms much resembling those of cholera. It is stated to be frequently used by quack doctors, and is employed as a topical application to bruises.

BUBO, *bu -bo*, [Gr. *boubon*, the groin]. A venereal swelling of one of the external glands of the body, generally in the groins, or under the arms.

Cause.—The absorption of the poison of syphilitic ulcers.

Symptoms.—Begins with pain and soreness, succeeded by a hard swelling, at first not larger than a bean, but becoming as large as a goose-egg. A bubo sometimes subsides without suppuration, but generally the swelling becomes red, marked by acute, throbbing pain, and the formation of matter. Care must be taken not to mistake it for a rupture, aneurism, or lumbar abscess.

Treatment.—The first object is to try and disperse the swelling. This may sometimes be accomplished by the application of four or five leeches, followed by a saturated solution of lead-water, 1 tablespoonful of sugar of lead to 1 pint of soft-water, and a dose of salts daily, for three

or four days. A piece of mercurial ointment the size of a bean should be rubbed into the swelling every night until it disappears, or a coppery taste is found in the mouth, when it should be discontinued. If the bubo fails to be dispersed in this way, poultices of bread and milk, or flaxseed, should be applied warm, and as soon as matter forms it should be evacuated with the lancet. In scrofulous constitutions the ulcers remaining are sometimes difficult to heal. They should be washed twice a day with carbolic acid and glycerine washes, 1 dram of the acid to 1 ounce of glycerine, in $\frac{1}{2}$ pint of water; a decoction of wild indigo root sometimes answers better. At the same time the system must be supported by a nourishing diet, and the administration of 2 or 3 grains of quinine three times a day. (See SYPHILIS.)

BUBONOCLE. (See RUPTURE.)

BUCHU. (See BAROSMA.)

BUCHU COMPOUND, *bu'-ku kom'-pound*. This combination of buchu, juniper berries, uva ursi, and cubebs, has been employed with decided success in diseases of the urinary organs to which it has a peculiar and specific direction. It may be used in cases when buchu alone would be used to arrest excessive discharges from the urethra; in the treatment of gonorrhœa and gleet, in chronic bronchial inflammation, in ulcerations of the kidneys, bladder, and urinary passages, forming an agreeable and safe remedy in these complaints. Dose, fluid extract, buchu compound, $\frac{1}{4}$ to 2 teaspoonfuls, to be taken three or four times a day. (See BAROSMA.)

BUCK-BEAN, *buk'-bene*, is one of the most beautiful of our marsh plants. It bears a trefoil leaf, and flowers in June. The blossoms are white and feathery-looking, with a tinge of pink. The leaves of the buck-bean are powerfully bitter, and might, perhaps, be more generally used as a tonic than they are at present. The infusion may be made with 1 ounce of dried leaves to 1 pint of water. Dose, 1 to 2 ounces, three times a day.

BUCKEYE BARK, *buk'-i*, [*Æsculus Glabra*], used in congestion of the liver and womb, piles and habitual constipation. Dose, of the fluid extract, from $\frac{1}{2}$ to 1 teaspoonful.

BUCK-THORN. (See RHAMNUS CATHARTICUS.)

BUCKWHEAT. (See FAGOPYRUM.)

BUFF, OR BUFFY COAT, *buf*, in Medicine, is a light yellow, or buff-colored viscid substance, which is formed on the surface of blood drawn in certain states of disease. Its presence has been frequently regarded as a sign of existing inflammation, but this is very far from being correct, as it may result from an opposite condition. It merely indicates that there is an alteration in the relative proportions of the

fibrin and the red particles, an excess of the former, which may be owing to a decrease of the latter, as well as to an increase of the other.

BUGLE WEED. (See LYCOPUS VIRGINICUS.)

BUILDING, CHOICE OF SITE. (See HOUSES.)

BULLÆ. (See SKIN, DISEASES OF THE.)

BUNION, *bun'-yun*, [Gr. *bounos*, an eminence], is a painful inflammatory swelling of the foot, most commonly about the root of the great toe. The pressure of tight shoes is usually the exciting cause; and, in order to remedy it, all such pressure upon the part should be avoided. Bleeding by leeches, warm fomentations, or poultices, should also be resorted to, in order to remove the inflammation. The swelling may sometimes be considerably reduced by an application of caustic. It should be kept covered with Burgundy pitch, or soap plaster, spread upon soft leather, or a circular piece of the fungus called German tinder.

BURDOCK. (See LAPPA MINOR.)

BURGUNDY PITCH, *bur'-gun-de*, a resinous substance used for making plasters. It is prepared from the resin of the spruce fir (*Abies excelsa*.) by melting it in hot water immediately after it has been scraped from the tree, and then straining it through a cloth.

BURIAL OF DEAD. (See DEATH.)

BURIAL, PREMATURE. (See DEATH.)

BURNETT'S DISINFECTING FLUID, *bur'-nets*, Burnett's solution, or, as it is sometimes called, Sir Wm. Burnett's disinfecting fluid, is one of the cheapest and best liquid disinfectants. It is composed of a solution of chloride of zinc, and, from its cheapness, has been much used in the army and navy. When diluted with water, it may be used to cleanse night-chairs, water-closets, chamber utensils, etc., and is especially useful for this purpose in cases of gastric or enteric, or, as it is often called, typhoid fever, in which the stools are not only offensive, but are the means of conveying to others the contagious poison peculiar to the disease. The solution is so cheap that it may be freely used for the above and for similar purposes. It is not so good for washing the hands as some other disinfecting solutions (Condy's for example,) as it does not form a good lather with soap. It may be used as a stimulant, disinfecting and deodorizing dressing to foul-smelling ulcers and sores, but for such purposes it must be freely diluted, according to the directions which are furnished for its use in the different ways recommended. (See ZINC, DISINFECTANTS.)

BURNS AND SCALDS, *burnz*, are injuries done to the body through excessive heat; burns being produced by fire or heated solids, scalds by heated fluids. Scalds seldom penetrate deeper than

the cutis; burns, on the contrary, may penetrate to any depth. Burns are more fatal in the young and old than in those of middle life, and are more dangerous on the head or trunk than on the extremities. A burn affecting an extensive surface is more to be dreaded than one which penetrates deeper without extending over much surface. In the case of burns, the following may be laid down as at once the simplest and the best, as well as the most readily applicable, and the least painful and troublesome method of treatment. Suppose a person, whose clothes have been set on fire, to be badly burned. The clothes should at once be cut off and removed. The patient must, however, be kept warm, as he invariably suffers much from cold and depression soon after a burn. The burned surface should next be smeared over with a feather with some oily substance, it does not much matter what, provided it be fresh. Carron oil is good, if it can be had (*i. e.*, equal parts of olive oil or linseed oil and lime-water.) Next, linen or muslin is to be steeped in this oily substance, and laid over the burned parts. Those parts which are much burned ought to be well protected with this, and finally a layer of cotton wool should be put on and secured by some light turns of bandage. Unless in the case of a slight scald, in spite of all that has been said or written to the contrary, nothing can be more cruel or absurd than to cover burns over with cotton wool, as it sticks to the surface firmly, and becomes saturated with discharge, which adds to the misery and pain of the patient by its unpleasant smell. All attempts to remove the cotton wool, too, cause great pain to the patient, whereas, if the oily dressing recommended above be first applied, both it and the wool may be removed at pleasure, and the dressing changed and renewed as often as may be necessary, or fresh dressings of another kind, or poultices, may be applied, according to the nature and demands of the case.

In the case of slight burns, and of scalds generally, quite the best application is the cotton wadding in sheets; it should be at once used to envelope the injured parts, double if possible, and bound or bandaged on with moderate firmness. If this mode of treatment be resorted to within the first twenty minutes after the injury, nothing more need be done; the cotton may be allowed to remain on from twenty-four hours to three or four days, according to the severity of the accident. Under its use blistering rarely occurs, and if it has commenced before the application, it subsides quickly, and painlessly. For the first ten minutes after the cotton dressing is put on, the pain of the injured parts seems increased, but ere long, it diminishes, and the inflamed skin appears to relieve itself by gentle perspiration. In the case above named, when cotton is to be procured—and no house in the country

ought to be without one or two sheets of it—it is perfectly unnecessary to use any other measures.

Spirits, whiskey or brandy, turpentine and other stimulants, all have their advocates, but the milder methods are preferable, at least domestically. A mixture of oil and lime-water is good, but disagreeable and dirty. A lotion made with $1\frac{1}{2}$ ounces of vinegar to 1 pint of water, may with advantage be kept constantly applied to a burn if it be not extensive—cold water is perhaps the most directly grateful application to a burnt or scalded surface, and if continued sufficiently long, will undoubtedly restore the usual condition of the part, but it must be persevered with for many hours, and when a burn or scald is extensive, this is a serious objection, in consequence of the extreme constitutional depression which so often follows the accident, especially in the young; and here the opportunity is taken, of warning parents of the necessity of watching closely the effects of even slight injuries of this kind upon children, particularly when the chest or abdomen are the seat of the accident; extreme depression—requiring the use of stimulants—may unexpectedly come on, and death, from an apparently very slight cause, be the result. Recently, a solution of the bicarbonate of soda, or common baking soda, has been used with great success in the treatment of burns and scalds. Soft linen cloths saturated with the solution, made by dissolving 1 teaspoonful of the soda in $\frac{1}{2}$ a pint of soft water, are kept constantly applied to the burnt surface, and the relief is said to be almost instantaneous. Kerosene is another article which has been successfully used in the treatment of these accidents. It may be applied freely. Flour dredged over the surface is an admirable remedy, even in slight burns, but is more useful still in these severe effects of heat in which the tissues are deeply destroyed by the action of fire; in these cases, flour applied at once, and repeated again and again for days together, wherever slight moisture seems oozing through the caked covering it forms, is the most generally applicable, pleasant, and safest remedy; a little fresh sweet oil, applied to the surface in the first instance, will make the flour adhere. Whatever application is used in the treatment of a burn, should be calculated to exclude the action of the external air; it ought to be one, also, which does not require frequent changing; indeed, the more extensive the surface involved in the accident, the greater care should be taken not to expose it to atmospheric influence, which, in the first place, increases pain, and in the second, adds to constitutional depression. This depression must always be carefully watched, and combated by the use of ammonia, wine, or spirit, sufficient to support without stimulating. When pain is excessive, and irritating the nervous system, a gentle opiate is required; but in some

of the severest burns, the sensation, not only in the injured part, but generally, is either wholly or partially abolished, in consequence of the shock to the nervous system at large. The symptom is of most serious, and indeed fatal import. In the less severe forms of injury from heat, if the cotton, the flour, or cold water, have been properly used, little after-treatment is necessary; but when a burn has been neglected or badly treated, the blisters broken, and when the true skin beneath is inflamed, and secreting matter, a simple tepid bread and water poultice should, in the first place, be applied for six or eight hours, and after it an ointment composed of 1 dram of liquor of lead or goulard water, rubbed up with an ounce of perfectly fresh lard. This ointment spread on linen, quickly relieves the very painful condition of the injured surface, and is often preferable to the lead lotion sometimes used.

In cases of deep burns, with destruction of the tissues, after the flour has been applied some days, it begins to be pushed off by the matter formed underneath, at this time poultices are to be continued until the caked flour is separated, and the surface below exposed, after which the simple dressing with tepid water will generally be the best and safest application, or in a later stage, if healing is slow, the lead ointment above recommended will be found useful.

During the cure of burns involving contiguous parts, such as the fingers, care must always be taken to keep the surfaces asunder by the interposed dressings, otherwise they may become united. After extensive burns or scalds, the constitution requires attention; the stimulating treatment of the first few hours or days must be dropped when feverish symptoms come on, and mild and cooling diet, gentle aperients, and cooling saline medicines administered; opium being given if requisite to allay pain or nervous irritation. This system will again require to be changed for one of stronger nourishment; meat soups, meat and wine, or other stimuli, if there is continued discharge. The use of stimulating diet, however, requires caution, on account of the tendency to inflammation of the lining membrane of the stomach and bowels, which exists during convalescence from injury to the skin by heat.

The frequent occurrence of accidents from burns or scalds, renders it desirable that all should be aware of the best methods of managing these painful injuries, which, when slight, may be well attended to without the aid of the surgeon; but which, when severe and extensive, and when, in children, the chest and abdomen are involved, ought, without delay to be put under professional care; accidents and symptoms may arise which educated skill alone can foresee or counteract. Scalds of the throat are not unusual accidents to children in consequence of their attempting to drink from the spout of a kettle of boiling water. The

injury is imminently dangerous, and when it has occurred, whether alarming symptoms come on at once or not, a surgeon should be summoned; it may probably become necessary very speedily to open the windpipe to save from death by suffocation; and the operation may be resorted to with good hope of success. In the interval, before the arrival of medical aid, leeches, from 2 to 6, according to the age of the child, should be applied to the throat externally, and 2 teaspoonfuls of castor-oil administered at once. If ice is to be procured, it should be constantly put into the mouth in small fragments.

In managing burns or scalds immediately after their occurrence, the following should be remembered: To protect from the action of the atmosphere—and the greater the extent injured the more necessary the precaution—to give stimulants or opium cautiously. The remedies—cotton—flour—oil and lime-water—vinegar and water—cold water—bicarbonate of soda—kerosene. (See SKIN; LIME, BURNS FROM; ACCIDENTS.)

BUSINESS, WHEN TO RETIRE FROM. (See OCCUPATION.)

BUTTER, *but'-tur*, [Lat. *butyrum*, from Gr. *bous*, a cow, and *turos*, coagulum]. Butter is the fatty part of the milk of animals, separated by the process of churning. Cows' milk is composed of three ingredients,—the cheesy portion, or curd; the whey, or watery part; and the butter. Milk, when examined by the microscope, is found to consist of a number of fatty globules, floating in the whey. These globules, which are little sacs, containing the butter, are broken during the process of churning, which allows the liberated fatty matter to aggregate in small masses, and float on the top of the whey. These are generally united by pressure against the bottom of the churn, and the remaining butter-milk is given as a drink to pigs. The butter is afterwards spread out in a thin layer in a shallow pan, and washed with clear spring water, to free it from any butter-milk that may remain in its pores. It is then salted and formed into rolls, or packed in crocks, if intended to be sold as fresh, but if it is to be kept for any length of time, it is packed in tubs or firkins, for the market. The quality and quantity of butter contained in cows' milk depend materially on the nature of the pasture. Rich natural meadows afford the best food for cows intended to produce butter. Poor pastures are objectionable, not only from the quantity of butter contained in the milk being diminished, but from its receiving an unpleasant taste from certain plants or weeds growing on all unfertile or marshy soil. Butter is adulterated with water, salt, lard, etc. The first may be detected by the wetness of the butter when squeezed, and the last two by small white particles being visible in the newly cut surface of the butter. When fresh, that is, free from rancidity, butter forms a

nutritious, it might almost be said instinctive, addition to farinaceous diet. Much has been said, in writings upon diet, respecting the unwholesomeness of butter, and, undoubtedly, in certain states of the system and of the digestive organs, it is so, but for healthy individuals it is the reverse. Butter in some persons, and if immoderately used in all, gives rise to biliary derangement, partly, doubtless, from its furnishing an excess of biliary material, but also from its presence in the stomach, as observed by Dr. Beaumont, causing a flow, or regurgitation of bile into that organ. The above remarks apply to simple butter unspoiled by cookery. When butter is exposed to gentle heat it melts; and under this condition, has obtained a reputation for indigestibility which is due rather to the quantity consumed than to its being merely put in that state which it assumes when it is exposed to the heat of the stomach. The case is very different, however, when butter has been exposed, whether alone, or combined with farinaceous articles, to a high temperature, such as that of an oven; it now becomes altered in character—empyreumatized—and is rendered very indigestible and irritating to the weak stomach. It is for this reason that baked pastry is so much more indigestible than boiled, from the greater heat to which the former is exposed. Butter, when it becomes rancid, contains various acids, which are so unwholesome that they may almost be ranked as poisons. (See Food.)

BUTTERCUP. (See *RANUNCULUS*.)

BUTTER-MILK, *but'-tur-milk*, the milk which is left after the butter has been separated by means of churning or other processes. It is ordinarily procured from milk after it has been kept some time, and has become more or less acid; but it may be procured from new milk when it is not acid, and only differs from milk by the absence of its oily parts. In this state it is still tolerably nourishing, and, being easy of digestion, is recommended in many stomach complaints, in consumption, diabetes, etc., being preferable to either the entire milk, or the watery parts of it in a more acid state. The acid of butter-milk does not increase the acidity of the stomach, or occasion the flatulency usually generated by vegetable acids.

BUTTERNUT. (See *JUGLANS CINEREA*.)

BUTTER OF ANTIMONY. (See *ANTIMONY*.)

BUTTER OF ZINC, OR CHLORIDE OF ZINC. (See *ZINC*.)

BUTTON SNAKE ROOT. (See *LIATRIS SPICATA*.)

BUXUS, *buks'-us* [supposed to be from Gr. *puknos*, dense, in reference to the wood], the box, a genus of plants belonging to the Nat. order *Euphorbiaceæ*, and consisting of evergreen shrubs or small trees with opposite leaves, entire at the margins, and easily split into two plates.

The flowers, which are very small, grow in little axillary clusters, the male and female flowers being distinct, but borne on the same plants. There are only two species known; namely, *B. sempervirens* and *B. balearica*. The former, which is the common box, is a native of Europe and Asia, and seldom attains a height of more than twenty to twenty-five feet. Many varieties are known in the European gardens, the most remarkable of which is the dwarf-box, so much used for the edgings of walks. The wood of the arborescent *B. sempervirens* is heavier than that of any other European tree, and will sink when placed in water. The leaves of the common box are purgative, and have been employed medicinally. An empyreumatic oil obtained from boxwood has been used successfully for the relief of toothache. A decoction of boxwood applied to the scalp, is said to be useful in baldness. (See CORNUS FLORIDA, BALDNESS.)

C.

CABBAGE, *ka'b'-baj*, as an article of diet, is not only wholesome, but extremely nutritious; it is, however, only suited for persons of good digestive powers. From the extreme liability of cabbage to pass into a state of putrefaction, it should always be used as fresh as possible. (See BRASSICA.)

CABBAGE BARK TREE. (See ANDIRA.)

CACHEXIA, *ka-kek'-se-a* [Gr. *kakos*, bad, *hexis*, habit], is a term used to denote a bad condition or habit of body, arising from whatever cause, in which the functions are imperfectly performed, and the complexion unhealthy. It is employed by Cullen to denote a peculiar class of diseases in which the general habit is affected, and a change of complexion, with emaciation or morbid enlargement, are characteristic symptoms; as jaundice, dropsy, etc.

CACHINNATION, *ka-k-in-na'-shun*, immoderate laughter, a symptom which occurs in hysteria, mania, and other affections.

CACTUS GRANDIFLORUS, *ka-k'-tus*, Night-blooming Cereus. A new remedy prepared from the fresh flowers is highly recommended in cardiac affections, angina pectoris, rheumatism and dropsy. Dose of fluid extract, 2 to 5 drops, three times a day.

CADMIUM, *ka-d'-me-um*, symbol Cd., equivalent 56.74, spec. grav. 8.6.—Cadmium was first discovered in 1818, by Stromeyer, in small quantities in certain zinc ores, in consequence of the behavior of their solutions with sulphuretted hydrogen. It is soft, malleable, and ductile,

of a white color, and when bent emits a creaking sound like tin. It is easily fused, and distils at a high temperature. It only forms one oxide, CdO , which is formed when cadmium is heated in air. It is yellow, brown, or black, according to the temperature to which it has been exposed. The chloride is formed by dissolving the metal in hydrochloric acid. It crystallizes in four-sided prisms. The sulphide, which is obtained by heating a mixture of oxide of cadmium and sulphur, is much used as a pigment. It is of a bright yellow color, but becomes temporarily red on being heated. The only other important salt is the iodide, which may be formed by direct combination of iodine and cadmium in the presence of water. It is alterative and astringent, but is seldom used internally. In large quantities it is emetic and poisonous. It is used in the form of ointment, 62 grains of the iodide of cadmium to 1 ounce of simple ointment, to reduce scrofulous swellings and enlarged joints.

CÆCUM, *se'-kum* [Lat. *cæcus*, blind], is the name given to a large blind-pouch, or *cul-de-sac*, extending downwards from the commencement of the large intestine. (See **INTESTINES**.)

CÆSAREAN OPERATION, *se-za'-re-an* [Lat. *cæsus*, from *cædo*, I cut], in Surgery, is the extraction of a child from the womb by an incision through the walls of the abdomen and the uterus. It is also called *hysterotomy*, from *hystera*, the womb, and *tome*, a section. This operation has been practised from very ancient times, and persons so extracted were termed, *cæsones*. Julius Cæsar is said to have received his name from his having been brought into the world in this way. The ancients, however, only had recourse to this operation when the mother was dead and the child alive; but it is now frequently performed on the living mother. There are three cases in which this operation may be necessary: 1. When the fœtus is alive and the mother dead, either in labor or in the last two months of pregnancy. 2. When the fœtus is dead, but cannot be delivered in the usual way, on account of the deformity of the mother, or the disproportionate size of the child. 3. When both mother and child are alive, but delivery cannot take place, from any of the above causes. The operation consists in carefully opening the walls of the abdomen in front of the uterus, which is also opened, and the child is then directly taken from the womb. When it is necessary, the best time for performing it is at the commencement of labor, when the strength of the mother is unimpaired, and there is less risk of inflammation. The operation is always one of considerable danger.

CAFFEINE, OR THEINE, *kaf-fe'-in* ($\text{C}_{16}\text{H}_{10}\text{N}_4\text{O}_4$), a crystalline alkaloid found in tea, coffee, Paraguay tea, and in *guarana*, a species of

chocolate prepared from the fruit of the *Paullinia sorbites*. Tea contains from two to four per cent. of caffeine, coffee but one per cent. It is easily obtained from tea by making a strong infusion of the leaves, mixing it with subacetate of lead, which precipitates the tannin, and transmitting a current of sulphuretted hydrogen through the liquid to precipitate the excess of lead. On evaporating the solution, and allowing it to cool, the caffeine crystallizes out in long silky needles. It has a weak, bitter taste, and fuses at 453°. Water and alcohol dissolve but a small quantity in cold, but it is very soluble in boiling water and ether. The fact that caffeine forms the essential principle of three substances used by widely different nations is a very curious one, and shows that the craving which it satisfies is as natural as it is universal. The use of tea or coffee as an article of diet seems to exercise a very important influence in retarding the waste in the tissues of the body. Its effect on the human system has, however, yet to be fully studied. (See COFFEE, TEA.)

CAHINCA. (See CHIOCOCCA RACEMOSA.)

CAJEPUT. (See MELALEUCA.)

CAKES AND SWEETMEATS. (See CONFECTIONERY.)

CALAMINE, *kal'-a-mine* [Lat. *calamus*, a reed]. Calamine is a carbonate of zinc employed in medicine in the form of a gray powder; it is chiefly used to sprinkle upon excoriations, chaps, etc.; but there are so many better applications that it might be altogether dispensed with. Mixed with wax and olive-oil, it forms the ointment known as "Turner's Cerate." The proportions are, calamine and wax, of each $\frac{1}{2}$ a pound, olive-oil 16 fluid ounces. The wax and oil are melted together, and the powdered calamine is stirred in during the process of cooking.

CALAMUS, *kal'-a-mus*, a genus of palms consisting of numerous species, all having very slender stems, which are found climbing over the trees in the forests of the hotter parts of the East Indies. The fruit of *C. Draco* is the chief source of the astringent resinous substance known in commerce as dragon's blood. This completely covers the fruit, and is melted or scraped off, and then formed into small cakes.

CALCAREOUS WATERS, *kal-ka'-re-us wa'-turz* [Lat. *calx*, *calcis*, lime]. Carbonate of lime dissolves in pure water to the extent of two or three grains to the gallon; but when carbonic acid is present, it is much more freely taken up. If, however, the temperature be raised, the carbonic acid escapes, leaving behind a crystalline deposit of carbonate of lime. In nature, enormous crystalline concretions of this kind are formed by water charged with carbonic acid percolating calcareous strata. The stalactite caverns of Derbyshire, England, and of the Mam-

moth Cave, Kentucky, are instances of this. Most spring water contains carbonate of lime held in solution, which is deposited on the sides of the vessel when the carbonic acid is expelled by heat. In steam boilers this becomes a great inconvenience, and is obviated by adding sal-ammoniac to the water. Chloride of calcium is formed, which remains dissolved, while the carbonate of ammonia is volatilized with steam. Water containing carbonate of lime in solution, or hard water, as it is popularly termed, is therefore softened by means of boiling. Hard water precipitates soap as stearate and margarate of lime, forming the well-known curdy precipitate. Until the whole of the lime is thrown down, no lather can be formed; hard water is, therefore, very uneconomical for washing purposes. Dr. T. Clark has devised a very ingenious method of softening hard water, by adding milk of lime. The carbonic acid unites with the lime, setting free the carbonate originally dissolved, and the whole falls to the bottom as a precipitate of carbonate of lime.

CALCINE, *kal-sine'* [Lat. *calx*, lime], a chemical term, signifying the separation of the more volatile portions of a solid body by means of heat. Thus lime is formed from chalk or limestone by calcination. The older chemists applied the term to the oxidation of metals by heat, thinking it was an analogous process to that just mentioned; they therefore called all oxides produced by heat, *calx*, or *calces* of the metal; thus, *calx* of tin is what is now called oxide of tin.

CALCIUM, *kal'-se-um* (symbol Ca., equivalent 20, specific gravity 1.55), the metallic base of the alkaline earth lime. Calcium belongs to the second group of metals, and has for its analogues barium, strontium, and magnesium. It is one of the most abundant substances in nature, forming a very large portion of the crust of the earth. It occurs in nature in combination with fluorine as fluor spar, with oxygen and carbonic acid as chalk, limestone, and marble, and with oxygen and sulphuric acid, as gypsum, which is hydrated sulphate of lime. Calcium was first obtained by Sir Humphrey Davy by electrolysis, in 1808; but little was known of its properties until Dr. Matthiessen formed it by the electrolytic decomposition of a mixture of the chlorides of calcium and strontium. It is a light-yellow metal, of the color of gold alloyed with silver; it is rather harder than lead. It melts at a red heat, and is very malleable. It tarnishes in a day or two even in dry air, and in moister air it becomes slowly oxidized. The best-known compound of calcium is its oxide, or lime, which may be obtained in a state of perfect purity by heating pure carbonate of lime to redness. In practice, lime is made by burning common limestone with alternate layers of coal in a kiln. Lime is a white, porous, opaque, inodorous, infusible substance, with strong alkaline and caustic properties. It is much used in the arts, for

mortar, cement, manure, dyeing, soap-making, leather-dressing, etc. When water is thrown on it, an equivalent is absorbed, and heat evolved, hydrate of lime ($\text{CaOH}\cdot\text{O}$) being the result. Hydrate of lime is commonly called *slaked* or *slacked lime*, to distinguish it from anhydrous oxide, which is known by the name of *quicklime*, from its powerful caustic properties. According to the British Pharmacopœia to form slaked lime, *calcis hydras*, take 2 lb. of lime and 1 pint of distilled water, place the lime in a metal pot, pour the water upon it, and when vapor ceases to be disengaged cover the pot with its lid and set it aside to cool. When the temperature has fallen to that of the atmosphere, put the lime on an iron-wire sieve, and by gentle agitation cause the fine powder to pass through the sieve, rejecting the rest. Then put the powder in a well-stoppered bottle and keep it excluded as much as possible from the air. Hydrate of lime or slaked lime is used in the purification of gas, in the preparation of ammonia and bleaching-powder, in candle-making, soap-boiling, cotton-printing, tanning, and sugar-refining. In the laboratory, hydrate of lime is extremely useful in preparing caustic alkalies, and in absorbing carbonic acid, for which it possesses a very strong affinity. Cold water dissolves about $\frac{1}{700}$ th of its weight of hydrate of lime, forming lime-water. Contrary to the usual rule of solutions, hot water only dissolves about half that quantity. In fact, when lime-water, prepared in the cold, is heated, it deposits crystals, which redissolve as the solution cools. Lime-water is alkaline to the taste, and turns vegetable yellows brown, and blues green. Exposed to air, it gradually absorbs carbonic acid, and deposits carbonate of lime. In medicine, lime-water is used as an antacid, and to afford a supply of lime to the bones of rickety children who have not the power of assimilating sufficient lime from their ordinary food to give the necessary compactness to their bones. Lime-water, *liquor calcis*, is made by taking 2 ounces of slaked lime and 1 gallon of distilled or rain water, and shaking the two together for two or three minutes in a stoppered bottle. After twelve hours the excess of lime will have subsided, and the clear solution may be drawn off for use. It should be kept in a green glass bottle, with a tightly ground stopper. Dose, 1 to 4 fluid ounces. *Milk of lime* is hydrate of lime mixed with water until a milky fluid is obtained. The principal oxysalts of calcium are the following: *Carbonate of lime* (CaOCO_2).—This substance enters largely into the composition of rocks and minerals, the bones of animals, the egg-shells of birds, the scales of fishes, and the shells of mollusks. The precipitated carbonate of lime is composed of 5 ounces of chloride of calcium, and 13 ounces of carbonate of soda, dissolved in sufficient quantity of boiling water. Dose, 10 to 60 grains. When burnt with access of air,

limestone forms ordinary lime; if, however, the air be excluded, and the heat raised to a considerable height, it fuses without undergoing decomposition, and, on cooling, forms a crystalline mass resembling marble. *Chloride of lime* is the name given to bleaching-powder, which is prepared by passing a current of chlorine through milk of lime, by which means it is obtained in solution; or by passing chlorine over hydrate of lime, which produces it in the form of a moist powder. By exposure to the air, hypochlorous acid is continually evolved by the action of the carbonic acid. If an excess of any acid is added, chlorine is produced. The former property is taken advantage of to destroy the gaseous poisons with which the air of sick-rooms and other localities is contaminated. By the action of the carbonic acid of the air, or by the addition of small portions of dilute sulphuric acid, hypochlorous acid is evolved, which *oxidizes* and destroys the miasmata. *Phosphates of lime*.—There are several phosphates of lime, the most important of which is that obtained from the burning of bones, which may be regarded as a triphosphate of lime. *Superphosphate of lime*, much used as a manure, is prepared by gradually mixing bone-dust with oil of vitriol, and adding an equal quantity of water between each addition of acid. The mass is allowed to lie in a heap until it is dry, and is then used under the name of *superphosphate of lime*. Its real composition is found to be a mixture of phosphate and sulphate of lime with the animal matter of bones. *Sulphate of lime* occurs in nature as *gypsum*, *selenite*, and *anhydrate*. Gypsum, on being burnt, yields a white powder, commonly known as *plaster of Paris*, from the best gypsum-beds being found near that city. Plaster of Paris, which is anhydrous sulphate of lime, possesses the property of solidifying when mixed with water. *Sulphate of lime* is prepared by passing sulphurous acid through water-containing chalk or hydrate of lime in a fine state of division. It is used as a convenient source of sulphurous acid. The various preparations of lime have all more or less of the same medicinal properties. Quicklime, like the fixed alkalies, is a powerful caustic and irritant. It is also used as a masticatory in India, with betel. Lime-water applied to suppurating or mucous surfaces checks or stops secretion, and produces dryness of the part. Administered internally it neutralizes acidity of the stomach, diminishes the secretion of the gastric juice, and occasions thirst and constipation. It is hence used as an antacid in dyspepsia, particularly when attended with nausea and vomiting, and as an astringent in diarrhoea, when the inflammatory symptoms have subsided. After absorption it increases the secretion of the urine, and diminishes the excessive formation or deposition of uric acid and the urates. Lime-water and milk is recommended as an antidote in poisoning by the com-

mon mineral and oxalic acids. In large doses lime acts as a poison, producing thirst, a burning sensation in the mouth and stomach, constipation, and death. A solution of chloride of lime is recommended as a wash in certain diseases of the skin, and is said to be very successful as a cure for itch, and also for ring-worm. A weak solution is also of great benefit in ophthalmia.

CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF. Component parts, bromine, iodine, chlorine, calcium, magnesium, iron, sodium and potassium (which see). Medically used in scrofula, scrofulous abscesses and swellings, and all diseases of the blood traceable to a scrofulous diathesis; in syphilis, cancer and cancerous tumors, caries or diseased bone; pulmonary degeneration, erysipelas, salt rheum, scald head, and cutaneous affections; in neuralgia and rheumatism, and particularly as an anti-bilious remedy to combat what is commonly called "liver complaint." Dose, 1 teaspoonful in $\frac{1}{2}$ a wine-glass of water, three times a day—an hour before each meal. After three days, double the dose.

CALCIUM, IODIDE OF. This preparation possesses alterative and tonic properties. It is very valuable in cases in which the iodide of potassium is inadmissible. It does not occasion iodism, or resorption of the healthy tissues; it does not excite the circulation, nor irritate the stomach and bladder, by passing off too rapidly by the kidneys. Its solution in milk is perfectly tasteless. It is particularly useful in scaly diseases of the skin, and chronic and metallic poisoning by mercury, lead and copper. Dose, $\frac{1}{4}$ of a grain in solution, three times daily. (See **CALCIUM**.)

CALCULUS, *kal'-ku-lus*, [Lat. dim. from *calx*, a limestone], is a hard inorganic concretion formed in various parts of the human body, and bearing a general resemblance in form and composition to stone. It receives various names, from the parts in which it exists; as, salivary in the salivary glands and ducts, pulmonary in the lungs, intestinal in the stomach or intestinal canal, biliary in the gall-bladder, urinary in the kidneys or bladder, gouty in the joints of gouty persons. The most familiar instance of the formation of calculus is the tartar which is deposited from the saliva and mucus of the mouth upon the teeth. The term calculus is, however, most frequently applied to those concretions which are formed in the gall-bladder or biliary ducts, and those formed in the kidneys or bladder. *Biliary calculi*, or *gall-stones*, are composed almost entirely of cholesterine, with some coloring matter. They vary greatly in size and number, amounting sometimes to hundreds, and even, it is said, to thousands; but so long as they remain in the gall-bladder they do not usually cause much uneasiness. It is when they pass into the canal by which the bile is

conveyed to the duodenum, that they occasion great pain and derangement of the system. The pain occurs in paroxysms, and is generally attended with shivering and vomiting. If the bile be wholly obstructed, jaundice comes on, and rapid emaciation succeeds. The disorder sometimes proves fatal, but generally the stones find their way, sooner or later, into the intestines, and the disturbance subsides. The best remedies are opium and hot applications over the seat of pain, or a warm bath. *Urinary calculi, gravel, or stone in the bladder*, are concretions formed and existing in the urinary passages. They generally originate in the kidneys, and afterwards pass down into the bladder, where they frequently attain a very large size; some have been found to attain the weight of 14 to 16 ounces, and even more. While in the kidneys they are termed *renal calculi*, and they sometimes remain there permanently, and may even attain a considerable size without causing much inconvenience; but they may also produce inflammation and abscess, and ultimately cause death. Generally, however, while yet of small size, they pass down the ureters into the bladder. Sometimes the passing is attended with symptoms similar to those occasioned by the passing of a gall-stone, and similar remedies are to be had recourse to. The calculus having passed into the bladder, is then termed a *vesical calculus*. At first it is attended with comparatively little pain; but unless removed or evacuated, it is sure to enlarge, and to give rise to one of the most dreadful diseases that can afflict humanity. In the earlier stages much may be done to check the progress of this dangerous malady; but when the calculus is once formed, the only means by which it can be got rid of is by an operation. The stone must either be withdrawn through the urethra by an instrument, or it must be broken into fragments small enough to be voided with the urine, or it must be extracted by an incision.

The different varieties of urinary calculus are thus classed by Dr. Wollaston, in the order of their frequency: 1. Uric acid. 2, oxalate of lime, called the mulberry calculus, from its dark color and rough surface; 3, ammoniaco-magnesian phosphate, called also the triple phosphate; 4, phosphate of lime, or bone-earth calculus; 5, fusible calculus—a combination of the last two species, and so called from its fusibility under the blowpipe; 6, the mixed calculus, composed of several of the other kinds confusedly mixed; 7, urate of ammonia; 8, carbonate of lime; 9, cystic oxide; 10, xanthic oxide. The last three are extremely rare. Many of the calculi, and, indeed, most of them, are not of one uniform composition, but consist of strata of two or three varieties, one forming a nucleus for the other deposits, and calculi thus formed receive the name of alternating. Uric acid is more common as a nucleus than

any other substance. Urinary calculus is more frequent in some districts than others, and locality likewise influences the species of the stone. In some families it appears to be hereditary, and especially in those who are also subject to attacks of gout. It is much more common among males than females; and soldiers and sailors are particularly free from it. The predisposing causes of it, however, are still very imperfectly understood.

Treatment.—The treatment should be directed to prevent the formation of calculus, or to retard its progress; to facilitate its expulsion when formed, and to relieve the sufferings of the patient. Particular attention should be paid to the general health. The diet should be nutritious, but not stimulating or rich; the digestion promoted and strengthened by tonics, active exercise encouraged, and the secretions by the skin encouraged by warm clothing, warm baths, and the flesh brush. When the calculus is composed of uric or lithic acid, or when acid predominates in the urine, the alkaline bicarbonates, as the bicarbonate of soda, in 10 grain doses, three or four times a day, should be administered. On the other hand, should the urine exhibit an alkaline state, acids will be found useful. The Vichy water, a solution of bicarbonate of soda saturated with carbonic acid, is strongly recommended in both cases, as by virtue of its carbonic acid, it counteracts alkaline formations, and by virtue of its alkalies, acid formations; while it also disintegrates the animal matter which cements them together. (See LITHOTOMY, LITHOTRITY.)

CALEFACIENT, *kal-e-fa'-shent*, substances are so called which excite a degree of warmth in the parts to which they are applied, as mustard, pepper, etc. They belong to the class of stimulants.

CALENDULA, *ka-len'-du-la*, in Botany, the marigold, a genus of plants belonging to the Nat. order *Compositæ*, sub-order *Tubifloræ*. The species *C. officinalis* is the common marigold. Formerly, many medicinal virtues were ascribed to this plant, and its flowers were usually added to soups to color them, and also to act as “comforters of the heart and spirits.” Saffron is frequently adulterated with the yellow florets of the marigold.

CALF'S-FOOT JELLY, *käfs'-fut jel'-le*, is made by extracting the gelatinous portions from the tendinous structures of the feet and knee-joints of the calf, by long boiling. Sugar, wine, or oil and spices, are added to the jelly thus obtained. This forms a palatable and easily digested article of food for convalescents, and may be taken either cold or dissolved in warm water.

CALIFORNIA, CLIMATE OF. (See CLIMATE.)

CALISAYA. (See CINCHONA.)

CALISAYA, ELIXIR OF, *kal-e-sa'-ya, e-lik'-sur*. Calisaya con-

stitutes the active agent of this elegant aromatic preparation. It is an agreeable and general tonic in convalescence from disease in children and feeble persons, and preventive against intermittents. Its tonic, anti-intermittent and sedative properties render it highly useful in a great variety of diseases, and while it possesses the distinctive quality of subduing fever, it can be used in most cases where tonics are prescribed. It is advised in gangrenous affections, in typhoid fevers with extreme prostration, in passive hemorrhages accompanied with great feebleness, etc. It is useful in the treatment of gout, chronic rheumatism, scrofula, and scurvy. It will be found of great advantage in dyspepsia, attended with irritation of the stomach; in severe diarrhœas and those that have been chronic; in long-continued inflammations of the mucous membranes, better treated with tonics than in any other way; in cases of convalescence, when the system is recovering from prostration; and generally in weak and prostrated states of the system, particularly during summer months. Each fluid ounce contains forty grains of true calisaya bark. Dose, 1 to 2 teaspoonfuls. (See CINCHONA, AROMATIC CALISAYA WINE.)

CALISTHENICS, *kal-is-then'-iks* [Gr. *kalos*, beautiful, *sthenos*, strength], the science or practice of exercising the limbs and body for the purpose of strengthening the muscles and acquiring a more graceful carriage. (See GYMNASTICS, EXERCISE.)

CALLITRICHE Verna, OR WATER STARWORT, *kal-li'-tri-ke ver'-na*, commonly called water chickweed. It is a small annual that floats in the water. It is common in all parts of the United States, and flowers from April to September. All parts of the plant are used. It is valuable as a diuretic. It is used in the form of a decoction, and may be drunk freely. (See DECOCTION.)

CALLOSITY, *kal-los'-i-te* [Lat. *callositas*], is an induration or hardness of the skin; as that of the hands through hard labor.

CALLUS, *kal'-lus*, is the bony matter which is deposited between the fractured ends of broken bones, and serves to reunite them. (See FRACTURES.)

CALMNESS OF MIND. (See PASSIONS.)

CALOMEL. (See MERCURY.)

CALORIC. (See HEAT.)

CALOTROPIS, *ka-lot'-ro-pis* [Gr. *kalos*, beautiful, *tropis*, keel, in allusion to the keel of the flower], in Botany, a genus of tropical plants belonging to the Nat. order *Asclepiadaceæ*. The species *C. gigantea* or *procera* yields the medicinal bark known as mudar bark, which has been much employed in India for the treatment of cutaneous affections. It is emetic, purgative, and diaphoretic, and is occasionally used as a sub-

stitute for ipecacuanha. It contains a peculiar principle called *mudarine*. The bark of the root *C. Hamiltonii* has similar properties, and is said to yield the fibres termed *Yercum*.

CALUMBA, COLOMBO, COLUMBA, OR COLUMBIA, *ka-lum'-ba*, the name given to a root very extensively used in medicine. It takes its name from Colombo, in Ceylon, whence it was first brought. Calumba root is bitter, aromatic, stomachic, and anti-emetic. It has been advised in dysentery, in serous diarrhœas, and bilious fevers. Combined with opium in a small quantity, it is useful in the treatment of obstinate colics, and as an anti-emetic for combating the nausea and vomiting which so often accompany the first periods of pregnancy. Used in dyspepsia, chronic diarrhœa, and dysentery; in convalescence from febrile and inflammatory diseases, hectic fever, and in the muscular debility of young children. Like other strong bitters, it occasionally checks the remittent and intermittent fevers of hot climates. The absence of irritating properties renders it also an appropriate tonic in the hectic fever of consumption, and other kindred affections. It is frequently administered in combination with other tonics, aromatics, mild cathartics, and antacids. In dyspepsia and vomiting it may be advantageously combined with bicarbonate of soda, as well as in debility with acidity of the stomach. Calumba is one of the best pure bitter tonics we possess, it is free from astringency, and exerts a sedative action. Calumba may be given in powder, in infusion, fluid extract, or tincture, but never in decoction. The dose of the powder is from 10 grains to 40; of the infusion, from 1 tablespoonful to 1 wine-glassful; of the tincture, 1 to 2 teaspoonfuls in water. The powder of calumba may be taken in water, simple or aromatic: 8 parts of calumba powder, 8 parts of carbonate of soda, and 2 parts of ginger, form a most excellent stomachic in dyspepsia, of which $\frac{1}{2}$ a teaspoonful may be taken in a wine-glassful of water. Dose: of fluid extract, 20 to 60 drops; tincture, $\frac{1}{2}$ to 2 teaspoonfuls; solid extract, 4 to 10 grains; pills, 2 grains each, 2 to 5 pills. (See INFUSION.)

CAMBOGE. (See GAMBOGIA.)

CAMOMILE. (See ANTHEMIS.)

CAMPHENE, CAMPHILINE, OR DADYL, *kam'-feen'*, a product obtained from turpentine. By acting on that body with hydrochloric acid, hydrochlorate of camphene is formed, which is transformed into camphene by the abstraction of the hydrochloric acid by the aid of quicklime.

CAMPHINE, *kam'-feen*, a name applied commercially to a pure variety of oil of turpentine which is furnished by the *Pinus australis* of the southern states.

CAMPBOR, *kam'fir*, [Gr. *kamphogen*, Arab. *kaphoor*], a solid crystalline substance found in many plants, though only obtained in large quantities from two; namely, *Camphora officinarum* and *Dryobalanops aromatica*. The former, an evergreen tree growing in China, Formosa, and Japan, yields almost all the camphor of European commerce. The camphor, which may be regarded as a solid volatile oil, is diffused through the entire plant, and is separated from the root, trunk, and branches. These parts are cut into chips, and boiled in water till the camphor begins to adhere to the stirring-rod, when the liquid is strained and allowed to stand until the camphor concretes. It is then sublimed into inverted straw cones contained within the earthen capitals of the stills. It is generally in small grayish, slightly sparkling grains, which, by aggregation, form crumbling cakes. Refined camphor is prepared by mixing the crude product with lime, and subliming it into thin glass vessels of a peculiar shape, which are afterwards cracked so as to obtain the camphor in concavo-convex cakes, each about three inches thick, with a hole in the middle. Camphor is colorless and translucent, and has a strong, penetrating, aromatic odor, and a bitter, rather pungent taste, though leaving a sensation of coolness in the mouth. Its specific gravity is from .98 to .99; so that it floats upon water, and, evaporating while doing so, undergoes a curious rotatory movement. It volatilizes slowly at ordinary temperatures, melts at 288° Fahr., boils at 400°, and burns with a bright flame. It is soluble in alcohol, ether, oils, and dilute acids; also to a certain extent in water. Camphor is used in medicine, both internally and externally, as a temporary stimulant. In moderate doses, it increases the fullness of the pulse, raises the temperature of the body, and operates as a sudorific; and hence it is frequently employed in fevers, especially of the typhoid type, particularly in combination with opium, and other diaphoretics. It acts as an anodyne, allaying nervous irritation, and producing quietude and placidity of feeling; and hence it is used in mania, melancholia, and other forms of mental disorder. In large doses it produces lassitude, giddiness, confusion of ideas, disordered vision, noise in the ears, stupor, delirium, and convulsions. Dose, 1 to 10 grains. Camphor-water is made by macerating half an ounce of camphor enclosed in a muslin bag, for at least two days, in a gallon of distilled water, in a stoppered bottle, the camphor being kept at the bottom of the bottle by means of a glass rod. Dose, 1 to 2 fluid ounces. The spirit of camphor is composed of 1 ounce of camphor dissolved in 9 fluid ounces of rectified spirits. Dose, 10 to 30 drops. The compound tincture of camphor is composed of 40 grains each of opium in coarse powder and benzoic acid, 30 grains of camphor, $\frac{1}{2}$ a fluid dram of oil of anise, and 1 pint of proof spirit, mac-

erated for seven days in a close vessel, and then filtered, adding sufficient of proof spirit to make 1 pint. Dose, 15 drops to 1 teaspoonful. Camphor also forms a constituent in a number of liniments and several ointments. Raspail, the founder of a peculiar system of medicine widely adopted in France, elevates camphor almost to the dignity of a universal medicine. The alcoholic solution of camphor, and the liniments of which it is the principle ingredient, are much used for external application in sprains and bruises, chilblains and chronic rheumatism. Insects are kept from attacking specimens of natural history by placing pieces of camphor in the case in which such specimens are preserved. Furs, clothing, etc., may be protected from moths by placing camphor in the trunks or boxes where they are kept. (See CAMPHORA, and the five following subjects.)

CAMPHORA, *kam-fō'-ra*, in Botany a genus of plants belonging to the Natural order *Lauraceæ*. The most interesting species is *C. officinarum*, the camphor-tree, a native of China, Formosa, and Japan, where it grows to a considerable size. It is an evergreen, and all parts emit a camphoraceous odor when bruised. The wood is white, light, and durable, and is much used in China for carpenter's work. From the roots, trunk, and branches of this plant the *common* or *officinal camphor* is obtained. (See CAMPHOR.)

CAMPHORATED CHALK, *kam'-fo-rate-ed chawk*, is composed of 2 ounces of camphor reduced in a mortar to a fine powder, with 10 drops of spirits of wine; then add 12 ounces of precipitated chalk; mix them intimately, and rub them through a fine gauze sieve; or $\frac{1}{2}$ ounce of camphor may be similarly mixed with 8 ounces of the precipitated chalk, and scented with any aromatic oil at pleasure. Both these powders should be kept closely stopped in a wide-mouthed glass bottle. Used as a local application in skin diseases, burns, excoriations, and ulcers.

CAMPHORATED SPIRITS OF WINE. Useful as an embrocation for sprains, rheumatism, chilblains, etc. Dissolve 1 ounce of camphor in $\frac{1}{2}$ pint of rectified spirits of wine, or alcohol.

CAMPHORATED TINCTURE OF OPIUM. (See PAREGORIC.)

CAMPHOR JULEP. Ingredients:

Take of Camphor.....	Twenty grains.
Spirits of wine.....	Twenty drops.
White sugar.....	Two drams.
Gum arabic....	Two drams.
Boiling water.....	One pint.— <i>Mix.</i>

Mode.—Rub the camphor into the spirits of wine, then mix in the sugar when reduced to a fine powder, and add the gum-arabic powdered.

Well mix these ingredients, and pour on them very gradually the boiling water, continuing the rubbing till the whole of the water is poured on. Cover it over, and when cold, strain it through fine linen for use. This julep is very useful in all spasmodic cases and nervous affections. Dose, 1 to 4 tablespoonfuls.

CAMPHOR LINIMENT. Ingredients:

Take of Camphor.....One ounce.
Florence oil.....Two ounces.—*Mix.*

Rub them well together till quite smooth. This is a useful liniment for cases of rheumatism, etc.

CAMP ITCH. (See SOLDIERS' ITCH.)

CANADA BALSAM, *kan'-a-da*, the juice of the *Abies Balsamea* or fir balsam, a tree found growing in all parts of the continent of America. In small doses it increases the urinary discharge, and also acts as a general stimulant. It has been found useful in gonorrhœa, gleet, chronic inflammation of the bladder, bronchitis, catarrh, piles, and rheumatic affections. Dose, from 5 to 20 drops, three times a day.

CANADA, CLIMATE OF. (See CLIMATE.)

CANADA FLEABANE. (See ERIGERON.)

CANARIES, CLIMATE OF THE, *ka-na'-reez*. It resembles, but is not quite as equable, as that of Madeira. (See MADEIRA.)

CANARY WINE, *ka-na'-re*. This wine, which is also known by the name of Teneriffe, is a product of the Canary Islands. In taste it resembles Madeira; it is made from grapes which have been gathered before they are ripe, and, when new, has a sour and unpleasant taste. After being kept carefully for two or three years, its mildness increases greatly, and, like Madeira, it is greatly improved by a journey to the tropics. More of it is produced on the island of Teneriffe than on the other Canary Islands. The name of Canary is only applied to the Bidogne wine, and never to the Malvoise or Malmsey of the Canaries.

CANCER, *kan'-sur* [so called from the large blue veins which appear, in cancer, to resemble crab's claws], is a disease of a very malignant character, making its appearance as a scirrhus tumor, which ultimately terminates in an ill-conditioned and deep ulcer. Any part of the body may be the seat of this disease, though the glands are most liable to its attack. The female breast, the tongue, or lips, are among the parts most liable to it.

Appearance.—The tumor at first is small, hard, indolent, and nearly insensible, and showing no inflammation, with little or no discoloration of the surrounding skin. It remains in this state for a longer or shorter period, sometimes for years, but at length it passes into a more active condition—the tumor increases in size, the skin changes to a livid or

red appearance, and pain begins to be felt in it. The pain, which is of a shooting or lancinating nature, is at first slight, and occurs at considerable intervals; but it increases by degrees, and the intervals diminish until it becomes almost constant. The cutaneous veins become turgid, and the surface of the tumor presents to the feel a knotty, uneven surface. Sometimes the skin never actually breaks, but, usually, after a longer or shorter period, the tumor ulcerates, and becomes an open sore. The discharge is of a thin, foetid, acrid nature, which corrodes the surrounding parts. The sore presents thick jagged edges, and a soft center, eaten, as it were, into irregular cells. The shooting pains are now much increased, and are of a very violent nature. The disease pursues its onward course; sometimes it seems as if it had exhausted itself, and was allowing nature to work a cure by the formation of new flesh; but this is merely a delusion, for it soon recommences its destructive course, and at length, it may be after years, it seizes upon some vital organ, or the patient sinks exhausted by the pain and continued drain upon his system.

Causes.—Of the cause, nature, or treatment of this terrible disease, little is, unfortunately, known. By some it is regarded as constitutional, by others as local; some maintain that it is hereditary, others that it may be transmitted by inoculation. So far as may be judged from the conflicting evidence on these points, there does seem, in general, to be a certain constitutional predisposition to this disease; though, according to Mr. Paget, only a sixth of the cases can be traced to any hereditary transmission. The evidence is against its being transmitted by inoculation. If cancer be at any period merely a local disease, it can only be in its earliest stage, for, in a short time, the whole system seems to be infected with it; and hence it is that, after a time, the extirpation of the original tumor so often fails in effecting a complete cure. Though all ages and both sexes are liable to this disease, the younger are less frequently attacked by it than the old, and females are more subject to it than males. Though cancer is, unfortunately, by no means uncommon, it is not all, nor even the majority of tumors, that bear a general resemblance to it, that are cancerous; in fact, it is often with the greatest difficulty that the cancerous or non-cancerous nature of a tumor can be determined; the presumption always is, in the case of a tumor getting well, that it was not cancer: hence the great importance, in every suspicious case, of having recourse to a skilful surgeon. With medical quacks every tumor is pronounced to be a cancer, and every cancer curable, the cures effected in the former case being taken credit for as of cancer; and, in the latter case, much excruciating agony is entailed upon the sufferer without any benefit.

Treatment.—The only hope of a cure in cancer is by extirpating the tumor in its earliest stages; and even this, after all, frequently affords but a temporary relief. According to Mr. Paget (“Lectures on Surgical Pathology”) “the average duration of life after the appearance of the cancer is forty-nine months.” In forty-nine cases in which the cancer was once removed by operation, the average duration of life was somewhat more than forty-nine months; and hence he concludes that the average duration of life is not materially affected by the removal of the local disease, but adds, that it is probable that the progress of the more rapid cases is retarded by the operation. Sometimes, in place of the knife, escharotics, as chloride of zinc, are had recourse to, but with no better success. Much good may be effected by means of palliatives; the patient is to be sustained by good nourishing diet, but all stimulants are to be avoided, and everything that would tend to increase the activity of the disease. The state of the general health is to be carefully attended to, and both mind and body kept as free from excitement as possible. In the local treatment of the disease, sedatives, as hemlock, henbane, and opium, are to be had recourse to in order to allay the pain. Of the internal organs, the womb in the female, and the stomach, are the most frequent seats of the disease. Cancer is very rare under thirty years of age. When, from the nature of a tumor, its hardness, situation, age of the patient, and particularly if there be any hereditary bias towards the disease, incipient cancer is suspected, there should be no trifling, no leechings, or rubbing, or fomentings; the advice of a skilled surgeon should be sought at once; and neither time, distance, nor expense should stand in the way of procuring that assistance which may not only preserve life, but save from a lingering or painful death. Should the suspicions be unfounded, the mind is restored to peace; should they be correct, the one remedy, incision, cannot be too soon submitted to, before the glands adjacent to the disease, or other textures of the body, become tainted. In any stage of the disease, however, the advice of the regular practitioner ought to be taken; above all, let the sufferer and the friends beware of being tempted by the specious advertisements of quack remedies, and of wasting time of which every day is precious.

When, unfortunately, cancer has reached the stage at which hope of cure must be given up; when it has become an open, grey-looking ulcer, discharging thin fetid matter, the seat of shooting and stinging pain, and when the constitution is affected, it only remains to make the situation of the sufferer as comfortable as possible. Opium in its various forms is the great soother, and the other anodynes, hemlock especially, both internally and as a poultice, are all of service. Cod-liver oil in some

cases allays the pain and retards the progress of the disease; but the regulation and administration of these remedies must be committed to the care of the medical attendant; the domestic remedies must be, the most perfect cleanliness and kindest consideration for the comfort and irritabilities of any one who is the victim of cancerous disease. Cancer cannot be said to be propagated by contact; but this should be avoided as much as possible; in the intimate relations of husband and wife, especially, whatever the organ or structure affected.

The lower lip is not unfrequently the site of cancer in old people; it is said, in those who smoke much; a painful sore in this situation, which will not heal, ought not to be neglected, but submitted to medical examination.

Among the lower animals this disease is not of infrequent occurrence, the animals most liable to its attacks being the cat and dog. (See BREAST, TONGUE, WOMB, CANCER SCROTI, MICROSCOPE; CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF; BERBERIS AQUIFOLIUM, ALTERATIVES.)

CANCER ROOT. (See OROBANCHE VIRGINIANA.)

CANCER SCROTI. Cancer of the scrotum, or chimney sweep's cancer, is a disease of the scrotum, to which chimney sweeps are particularly liable, owing, it is believed, to irritation, caused by the action of the soot on that part. It commences by an indurated enlargement of the integuments, which may continue for a long time without much apparent progress, but eventually proceeds to ulceration, and, if not checked, will involve the surrounding parts. Local applications may stay the progress of the disease and alleviate the suffering, but the only hope of a cure lies in excision, which should be done at an early stage of the disease, to afford any hope of permanent relief. (See CANCER.)

CANELLA ALBA, *ka-nel'-la al'-ba* [*Canella*]. An evergreen tree belonging to the Nat. order *Canellaceæ*. It is also known by the common names, wild cinnamon, white cinnamon. A native of Jamaica and other West India islands. The bark is the part employed in medicine. Canella is possessed of the ordinary properties of aromatics; acting as a local stimulant and gentle tonic, producing upon the stomach a warming, cordial effect, which makes it valuable as an addition to tonic or purgative medicines in debilitated states of the digestive organs. Seldom prescribed except in combinations. Dose: fluid extract, 15 to 20 drops; powder, 10 to 30 grains.

CANINE MADNESS. (See HYDROPHOBIA, BITES AND STINGS.)

CANINE TEETH. (See TEETH.)

CANKER LETTUCE. (See PYROLA.)

CANKER, OR CANCRUM ORIS. (See THRUSH, NURSING SORE MOUTH.)

CANNA, *kan'-na*, Canna Starch is obtained from a West Indian plant. It is imported from St. Kitts, and is an excellent arrowroot. It is a salutary and agreeable article of diet for invalids and children, and is easily digested. It may be boiled the same as arrowroot, and used for the same purposes, and in the same cases.

CANNABIS, *kan'-na-bis*, in Botany, the hemp, a genus of plants representing the Nat. order *Cannabinaceæ*. *Cannabis sativa*, the only species, yields the valuable fibre called hemp, which has been known for more than 2,500 years as a material for cordage, sacking, and cloth. In the Northern States the plant grows to the height of about six feet, but in warmer climates it has occasionally been found sixteen or eighteen feet high. The fruits, commonly termed hemp-seed, are oleaginous and demulcent, and are used for feeding birds. When submitted to pressure, they yield about twenty-five per cent. of a fixed oil, which is used for making varnishes. In the sap of the hemp-plant there exists a resinous substance which has extraordinary narcotic properties. In northern climates the proportion of this resin in the several parts of the plants is so small as to have escaped general observation; but in the warmer regions of the East, the resinous substance is sufficiently abundant to exude naturally from the flowers, leaves, and young twigs. The Indian hemp, which is so highly prized for its narcotic virtues, is considered by some botanists to be a distinct variety, and is distinguished by them as *C. sativa*, var. *indica*. This herb, and the resin obtained, are largely employed in Asia, and in some parts of Africa and South America, for the purposes of indulgence. The dried plant is smoked, and sometimes chewed. Five or ten grains reduced to powder are smoked from a common pipe along with ordinary tobacco, or from a water-pipe with a peculiar variety of tobacco called *tombeki*. The resin and resinous extracts are generally swallowed in the form of pills or boluses. The hemp-plant and its preparations appear to have been used from very remote times. The effects of the natural resin, or *churrus*, have been carefully studied in India by Dr. O'Shaughnessy. He states that when taken in moderation it produces increase of appetite and great mental cheerfulness; while in excess it causes a peculiar kind of delirium and catalepsy. The effect produced by hemp in its various forms varies, like that of opium, both in kind and in degree, with the race of men who use it, and with the individuals to whom it is administered. Upon Orientals its general effect is of an agreeable and cheerful character, exciting them to laugh, dance, and sing, and to commit various extravagances. It, however, renders some excitable and quarrelsome, disposing them to acts of violence. Indian Hemp, or *Cannabis Indica*, is narcotic, nervine, and anæsthetic, also hypnotic. The Chinese were acquainted

with its use as an anæsthetic as early as the third century of the Christian era, and a celebrated Chinese physician is said to have operated on his patients after having rendered them insensible by a preparation of wine and hemp powder. This agent has been chiefly employed in spasmodic and painful affections, and in several of these its curative powers are unquestionable.

The cases of tetanus recorded, demonstrate that when given boldly in large doses, the resin of hemp is capable of arresting the progress of this formidable disease, and in a large proportion of cases of effecting a perfect cure. Professor Miller, of Edinburgh, says: "My own experience speaks loudly in favor of hemp. I can now record three fortunate cases under its use, all traumatic tetanus."

In neuralgia, the preparations of hemp have been found to palliate, and in not a few instances to effect a perfect cure.

The action of cannabis or Indian hemp, appears to have been salutary in rheumatism.

It is also recommended to produce sleep where opium, from long continued use, has ceased to produce its proper effects. Cases are mentioned in which cannabis entirely allayed the intense itching of eczema, while the patient continued under its effects, and procured refreshing sleep which no other means could obtain.

It has also been employed with satisfactory effects in the treatment of delirium tremens. Dose: fluid extract, 5 to 10 drops; solid extract, 1 to 2 grains; pills $\frac{1}{2}$ grain each, 2 to 4 pills; pills 1 grain each, 1 to 2 pills; tincture, 5 to 20 drops.

CANTHARADIN, *kan-thar'-a-din*, the crystalline blistering principle contained in the *Cantharis vesicatoria*, or Spanish blister-fly, first obtained by Robiguet. To procure it the flies are digested in alcohol. The alcoholic solution is afterwards evaporated to dryness, and washed with cold ether, which dissolves out the cantharadin. When pure, it is insoluble in water, but very soluble in boiling alcohol. Lard, containing one five-hundredth of cantharadin, will produce very powerful blistering effect when applied to the human skin.

CANTHARIDAL COLLODION, *kan-thar'-e-dal kol-lo'-de-un*, a solution of cantharides in collodion. It produces a blister in about the same time as the ordinary cerate, and has the advantages that it is applied with greater facility, is better adapted to cover uneven surfaces, and retains its place with more certainty. On application, evaporation of the ether takes place in less than a minute, and it may then be reapplied if necessary.

CANTHARIDES, *kan-thar'-e-deez*. The word is the Latin plural of *Cantharis*—*vesicatoria* the Spanish blistering fly. (See BLISTERS.) In

addition to its uses as a blistering agent, the Spanish fly is used internally; but it is too hazardous a remedy for general use. It is sometimes given as a poison, for malicious or criminal purposes. When swallowed in a poisonous dose, cantharides quickly produce pain in the stomach and bowels, and intense inflammation; distressing irritation of the urinary organs follows, with constant desire to pass urine, which comes away in small quantities, with or without blood, or is entirely suppressed; stupor and delirium precede death. The remedies in a case of poisoning by Spanish fly must be of the most soothing character; milk given cold may, as it coagulates in the stomach, envelope the irritant particles, or it may be used boiled with flour; white of egg, linseed-tea, or indeed the emollient most quickly and easily procurable should be swallowed largely; and vomiting, if not present, promoted by a feather in the throat, or by ipecacuanha. Oil is sometimes forbidden in such cases, from its being a solvent of cantharides; but after vomiting, or even before, if the dose is not large, one or two doses of castor-oil may safely and advantageously be given, each in combination with 20 or 30 drops of laudanum. Injections of starch, linseed-tea, or the like, with or without laudanum, will allay the irritation in the lower bowels. Hot applications to the abdomen generally should be used, and if there is much tenderness, leeches, freely. Should the patient recover, the state of the alimentary canal and urinary organs for some time require care, and the mildest and most unirritating mode of living must be pursued. A little cantharides ointment, smeared upon the silk of a seton, increases the discharge when deficient.

CANTHARIS VITTATA, *kan'-tha-ris vit-ta'-ta* [*potato-fly*], the common potato-fly of the United States, possesses the same properties, in a minor degree, of the Spanish fly, and in the absence of the latter may be used for blistering purposes.

CANTHUS, *kan'-thus* [Lat]. The angle of the eyelids, where the upper and under eyelids meet. That nearest the nose is termed the internal or greater canthus; and the other, nearest the temple, the external, or lesser canthus.

CAOUTCHOUC, INDIA-RUBBER, OR GUM-ELASTIC, *koó'-chuk* or *ka-oot'-chook* [its Indian name]. Caoutchouc is the solidified milky juice of certain tropical plants, the largest supply being obtained from the *Ficus elastica*, a tree belonging to the order *Moraceæ*, found in Assam; from other species of *Ficus* growing in Java and America; from the *Siphonia elastica*, a native of Guiana and Brazil; and from the *Urceola elastica*, a climbing plant found in the islands of the Indian archipelago. Many other plants yield caoutchouc in small quantities, such as the common fig (*Ficus carica*), the spurge, the dandelion, and the celandine.

Chemically considered, pure caoutchouc is a carbide of hydrogen, or hydrocarbon, C_8H_7 , possessing a specific gravity of 0.92 to 0.97 (Faraday). It is prepared by dissolving the commercial material in chloroform, precipitating with alcohol, and drying it at a temperature of 70° to 80° Fahr. As it is found in commerce, it is a dark brown material, soft and elastic at ordinary temperatures, hardening temporarily at about 40° Fahr. and melting at 250° into a liquid having the consistency of tar, which does not soon resolidify. It is insoluble in water and alcohol, but dissolves more or less readily in chloroform, washed ether, bisulphide of carbon, coal-tar, naphtha, benzole, and oil of turpentine. Nitric acid, sulphuric acid, and the alkalies, attack it but slowly. Caoutchouc dissolves in the fixed oils, but loses its elastic properties thereby. Caoutchouc, in its unvulcanized state, is most useful in the laboratory for connecting the tubes of apparatus. Its power for resisting re-agents, and its property of cohering to form a tight joint when newly cut, render it a desideratum in the modern laboratory. In its permanently melted condition it forms a valuable lute for pneumatic apparatus. Stoppers and stopcocks lubricated with it remain movable, yet perfectly air-tight. Vulcanized, it serves for gas bags and tubes, and for many other purposes. It must, however, be used with great care, as it is liable to introduce sulphur into solutions near which it passes.

CAPACITY, VITAL. (See RESPIRATION.)

CAPILLARIES, *kap'il-la-reez* [Lat. *capillus*, a hair,] in Anatomy, are the minute blood-vessels of the body which form the connection between the extremities of the arteries and the veins. They vary in size from $\frac{1}{1500}$ th to $\frac{1}{3000}$ th of an inch in diameter, being smallest in the brain and largest in the bones. It is in the capillaries that nearly all the changes in the blood take place. It is in them that its carbonization is effected and animal heat produced, and from them that the bile, sweat, and urine are secreted. (See ANATOMY, CIRCULATION OF THE BLOOD.)

CAPISTRUM, *ka-pis'-trum* [Lat. a bridle], in Surgery, is a single split cloth bandage, used to support the lower jaw; so called from its resemblance to a bridle.

CAPSICINE, *kap'-se-sin* [from *capsicum*, derived from Gr. *kapto*, I bite, in allusion to its pungency], an alkaloid found in the capsules of the various species of capsicum used in the manufacture of cayenne pepper. It has a burning taste; is insoluble in water and ether, but soluble in alcohol, and may, when quite pure, be crystallized. It forms salts with nitric, sulphuric, and acetic acids. Its composition is unknown. (See CAPSICUM, ALKALOIDS.)

CAPSICUM, *kap'-se-kum* [from Gr. *kapto*, I bite], in Botany, a

genus of plants belonging to the Nat. order *Solanaceæ*, consisting of numerous species, all remarkable for the presence of an acrid resin called *Capsicine* in their fruits, which are hot, pungent, and stimulating. Though now extensively cultivated in many parts of the Old World, the various species are supposed to be natives of South America. The officinal capsicum, the *C. annuum* of Linnæus, or the *C. fastigiatum* of Blume, has oblong-cylindrical fruits, not an inch long in the most valuable varieties, but two or three inches long in others. These fruits are commonly sold as *Chillies*, and are used to make a hot pickle, and the liquor known as *Chilli vinegar*. Cayenne pepper consists of the powdered fruits of several species of *Capsicum*, found in the West Indies and South America. In medicine, the fruit of the capsicum is used as an acrid stimulant and counter-irritant. In small doses it creates an agreeable sensation of warmth in the stomach, and promotes the digestive process. Dose, $\frac{1}{2}$ to 1 grain. Combined with salt, it is used as a stimulant in scarlet fever, and also as a gargle in relaxed sore throat; or in the form of cayenne lozenges. Of the tincture, $\frac{3}{4}$ ounce to 1 pint of rectified spirit, the dose is from 10 to 20 drops; dose of fluid extract, 3 to 15 drops. (See CAPSICINE.)

CAPSULE, *kap'-sule* [Lat. *capsa*, a chest], is a membranous production, enclosing any part like a bag; as the capsular ligaments enclosing the synovia of the joints, the capsule of the crystalline lens of the eye.

CAPSULES, *kap'-sûlz*, a name applied to small egg-shaped or spherical vessels, commonly made of gelatine, or of sugar and gelatine, and containing medicines of a nauseous nature, so that they may be swallowed the more readily. (See GELATINE.)

CAPUT, *ka'-put* [Lat. the head], in Anatomy, is applied to that portion of the human body which comprises the skull and face. The skull is distinguished into the following parts—the *vertex*, or crown; the *sinciput*, or fore part of the skull; the *occiput*, or hind part; the *tempora*, or temples. The parts of the *facies*, or face, are the forehead, eyes, nose, etc. The term *caput* is also applied to—1, the upper extremity of a long bone, as the humerus; 2, the origin of a muscle; 3, a protuberance resembling a head, as the *caput Gallinaginis*, a small eminence in the urethra; 4, the beginning of a part, as *caput coli*, the head of the colon.

CARMEL, *kar'-q-mel* [Fr]. If sugar is melted, and the heat raised to 400° or 420°, the sugar loses two equivalents of water and becomes a brown, deliquescent, and nearly tasteless mass called caramel. It is often used by cooks and confectioners as a brown coloring matter. The brown color in brandy is due to a small portion of caramel dissolved in them.

CARAWAY. (See CARUM.)

CARBAZOTATE OF AMMONIUM. (See CARBAZOTIC ACID.)

CARBAZOTIC ACID, OR PICRIC ACID, *kär-bq-zot'-ik*, a complex acid, produced by the action of nitric acid on a number of organic substances, such as phenic acid, salicine, phloridzin, silk, indigo, and a number of the resins. It may be prepared in a variety of ways. Carbazotate of potash is anhydrous, and requires 160 parts of water for its solution; the salts of soda, ammonia, and the earths are freely soluble. The picrate or carbazotate of ammonium has lately been introduced as a substitute for quinine in the treatment of intermittent fever, and especially of the chills so prevalent in the Southern States. It is much cheaper than quinine, and said to be quite as efficient. It is given in doses of $\frac{1}{3}$ of a grain, three times a day.

CARBO ANIMALIS, *kär'-bo an-i-mal'-is*, bone-black or ivory-black. A tasteless, insoluble, rather coarse powder, of a dark brownish or blackish color, obtained by burning bones in covered iron vessels at a red heat. Its principle use is to decolorize organic matter, to purify syrups, and to remove from grain its fusel-oil. It is considered equal, if not superior, to hydrated sesquioxide of iron in poisoning by arsenic. It should be given in warm water, after the use of the stomach-pump and the administration of a strong mineral emetic.

CARBOLIC ACID, *kar-bol'-ik* [*Phenic acid, Hydrate of Phenyl, Phenole, Hydrated Oxide of Phenyl, Phenyllic Alcohol*] ($C_{12}H_5OHO$).—Carbolic acid is a very abundant product of the distillation of coal. Laurent obtained carbolic acid from oil of coal-tar by collecting separately those portions which boil between 300° to 400° Fahr. By mixing with this oil a hot saturated solution of hydrate of potash, a white crystalline substance separates, the supernatant liquor is decanted, and the crystals are dissolved in a small quantity of water. The solution separates into two portions, the denser of which contains carbolate of potash. The potash is abstracted by the addition of hydrochloric acid, and the liquid carbolic acid rises to the surface. The carbolic acid solution is digested with chloride of calcium to remove water, and afterwards exposed to a low temperature. It then crystallizes in long colorless needles, which must be kept from contact with the atmosphere. Carbolic acid melts at 95° , and boils between 369° and 370° . The slightest trace of moisture is sufficient to cause the liquefaction of the crystals. Carbolic acid is but sparingly soluble in water; it is, however, readily dissolved by alcohol, ether, and acetic acid. It has a burning taste, and an odor of smoke resembling creosote. Its solution does not redden litmus, and leaves a permanent greasy mark on paper if let fall upon it. A splinter of deal dipped in carbolic acid and then into nitric

acid becomes dyed blue. Carbolic acid has lately received an important application as a disinfectant and deodorizer. In medicine, carbolic acid possesses all the properties of creosote in an exalted degree. It is a valuable antiseptic, possessing the power of preserving organic substances by preserving from putrefaction and arresting fermentation in a remarkable degree. It is also used as a disinfecting wash for ill-conditioned ulcers and gangrenous sores. For disinfecting cellars, sewers, sinks, privies, etc., there is no better preparation than carbolic acid in the proportion of one ounce of the impure acid to a gallon of water. Five grains of the crystallized acid, rubbed up with an ounce of simple ointment (see OINTMENT), and applied morning and evening, will cure fetid perspiration of the feet and armpits. For old sores, indolent ulcers, and bad smelling wounds, a teaspoonful of the acid to a half-pint of water makes an excellent wash. One ounce of the acid to 4 ounces of glycerine, rubbed together until the acid dissolves, and applied morning and evening, will speedily cure the itch, and also makes an excellent application for scald-head, ringworm, and other obstinate cutaneous diseases caused by vegetable or insect parasites. Internally, it is used in chronic diarrhœa and obstinate vomiting, and like cases of gastric irritability. Dose, 1 to 3 grains. (See DISINFECTANTS.)

CARBON, *kär'-bon* [Lat. *carbo*, a coal],—symbol C, equivalent 6, specific gravity as diamond 3.35, as graphite 1.9 to 2.3, an elementary non-metallic solid body, very widely diffused through nature. Its purest and rarest form is that of the diamond, but in the forms of graphite and mineral charcoal it occurs very abundantly in nearly every part of the world. It also occurs, in combination with oxygen, as carbonic acid, in small quantities in the air, and in the waters of most springs. In combination, as carbonic acid, with lime and magnesia, it occurs, in enormous quantities, as limestone, marble, chalk, dolomite, etc.; whilst, combined with hydrogen, it enters largely into coal, peat, and lignite. From its invariable presence in all organic matter, it has been called the organic element; and Hoffman poetically calls organic chemistry “the history of the wanderings of carbon.” From entering thus directly into the vegetable and animal creation, carbon may be considered as the most important element; and the giving out of carbonic acid by animals, to serve for the food of vegetables, is one of the many silent chemical operations constantly going on around us. The wonderful provision of Nature by which the carbonic acid cast out by animals as a poisonous product is converted into food for the support of plants, by the action of the sun’s rays, has been the admiration of all philosophers and chemists from the days of Lavoisier to the present time.

Carbon, although not so characteristic a component of the animal as of the vegetable kingdom, yet enters largely into the constitution of the former; it assists to give permanent form to the various tissues, and furnishes one of the most active material agents, which, under the influence of life, make up the sum, and contribute to the varied changes and effects which are ever going on in the animated body. We have every reason to believe that carbon is the medium by which, as it combines with the oxygen inhaled by the lungs, and carried through the system by the blood—the animal temperature is maintained. Such being the case, it is evident that, next to oxygen, carbon is the element which must be most regularly and sufficiently supplied to the living body; the other constituent elements must undoubtedly be provided in food, but their omission for a time is not so apparently and quickly felt as that of carbon; if this be not furnished from outward sources, it is used up from the bodily tissues as long as they will yield it, even though its use involves their destruction, and the dispersion of the other elementary bodies of which they are composed. This actually happens in long fevers, during which little or no nourishment is taken; the carbon—and hydrogen—of the fat in the first place, and afterwards of the other portions of the body, is used up in sustaining the animal heat—as fuel—until a point is reached when it can be yielded no longer, and when the patient will actually die of cold, unless there is freely administered the gelatinous soups, the wine and spirit, with their abundant carbon and hydrogen, which yield their own combustible elements, to maintain the heat, and to protect the tissues of the already exhausted patient.

The discoveries of modern chemistry show us how beautifully the Almighty, in His goodness, has arranged the products of the various latitudes of the globe, has disposed the varied articles of food, he gives to His creatures, to man, in accordance with the various climates, and the modes of life in those climates, so that carbon may be consumed in due proportion along with the other elements; less in the watery fruits of the tropics and of our own summers, more in the fats and oils of the cold north.

Charcoal, or amorphous carbon, exists as ordinary wood charcoal and lampblack, generally combined with incompletely burned compounds of carbon and hydrogen. Coke and animal charcoal are other forms of carbon. Charcoal is made by inclosing wood billets in an iron retort, to which is adapted a tube for conveying the products of combustion to appropriate receivers, and exposing it to a red heat for four or five hours. Where wood is very abundant, large heaps, covered with powdered charcoal, leaves, turf, and earth, are fired and allowed to burn slowly for a month or more. Charcoal prepared in this way is superior to that

burnt in retorts. *Animal charcoal*, or bone black, is prepared in cylinders, in a similar manner to that employed for wood charcoal. Carbon, in its amorphous condition, is a black, dense, perfectly opaque, insoluble, infusible, inodorous, tasteless body, conducting heat badly and electricity freely. At ordinary temperatures it shows no chemical affinities. This property has been taken advantage of by the ancients, who used it for ink. The same property has rendered it a common practice to char the inside of tubs and casks intended to hold liquids; and posts and piles partially charred are found to last longer under water than when immersed in their natural state. Finely divided charcoal has powerful antiseptic properties, and it is coming into use as a deodorizer for purifying the air of sewers. The great success attending the use of carbon for filters, both of air and water, is a proof of its efficacy as a disinfectant and deodorizer. Charcoal also has the peculiar property of absorbing coloring matter from organic solutions; hence it is used as a decolorizer. At high temperatures carbon combines energetically with oxygen, and will remove it from great numbers of its combinations: hence its use in reducing metallic oxides. Whatever be its source or form, carbon is chemically the same, and, when burned in oxygen, forms carbonic acid. Carbon unites with several of the elements to form very important compounds. Its inorganic compounds are treated of under the heads CARBONIC ACID; CARBONIC OXIDE; CARBON, BISULPHIDE OF; HYDROGEN. In Medicine, wood charcoal is used as an antiseptic and disinfectant. It has lately come much into use in indigestion, particularly in the form of lozenges, correcting flatulence, fetid breath, fetid stools, etc. It is also used as a tooth powder, and is believed to check decay of the teeth. Dose, from 20 to 60 grains. Charcoal poultice, a useful application for foul and fetid ulcers, is made by macerating 2 ounces of bread crumbs for 10 minutes in 10 fluid ounces of boiling water, mixing and adding gradually $1\frac{1}{2}$ ounces of linseed meal so as to form a poultice, then adding $\frac{1}{4}$ ounce of charcoal, and sprinkling another $\frac{1}{4}$ ounce on the top. Animal charcoal possesses the same medicinal properties as those of wood charcoal, but some of these to a greater extent. It is particularly useful as a decolorizer, and as an antidote in poisoning by certain vegetable substances, the alkaloids, etc., if given immediately. As an antidote its action is much aided by its being mixed with water as hot as the patient can swallow it. Dose, 20 to 60 grains. (See CARBON, BISULPHIDE OF; AERATION, BLOOD, BILE, RESPIRATION, FOOD, CARBONIC ACID; OXYGEN, CARBONIC OXIDE, ETC.)

CARBONATE, *kär'-bon-qt*. A salt formed by the union of carbonic acid with a base. They all effervesce with strong acids, and all are decomposed by heat, except the carbonates of potash, soda, and lithia.

CARBONATED WATERS. (See MINERAL WATERS.)

CARBONATE OF AMMONIA. (See AMMONIA.)

CARBONATE OF IRON. (See IRON.)

CARBONATE OF POTASH. (See POTASH.)

CARBONATE OF SODA. (See SODA.)

CARBON, BISULPHIDE OF, *kär'-bon bi-sul'-fide* (CS_2),—equivalent 38, specific gravity 1.27, boiling point 118.5° Fahr. Only one compound of sulphur and carbon is known. It is prepared by heating fragments of charcoal to redness in a retort; into which dip a tube reaching to the bottom of the charcoal. From time to time sulphur is dropped through the tube, which is closed again immediately. The sulphur and carbon gradually combine, and the bisulphide distils over into the receiver, which is kept cool with ice. It is at first yellow, from excess of sulphur; but by being re-distilled several times it is obtained in a state of purity. It is a colorless liquid, with an acrid, pungent taste, and a fœtid odor. It is insoluble in water, but dissolves in ether and alcohol. It is very volatile, and has never been frozen. It burns with a blue flame, giving off sulphurous and carbonic acid gases. It dissolves sulphur and phosphorus readily, and these elements may be obtained in crystals by slow evaporation of their solutions. It is said to be stimulant, diaphoretic, and emmenagogue in doses of 2 to 6 drops in mucilage or on sugar. The vapor is anæsthetic. (See CARBON.)

CARBONIC-ACID, CARBONIC-ACID GAS, *kar-bon'-ik*. Carbonic acid (CO_2), equivalent 22, specific gravity 1.529. Carbonic acid is the product of the combustion of all substances containing carbon. It occurs in combination with metallic oxides in the mineral kingdom, also dissolved in mineral springs. It issues from the earth in volcanic districts, and forms the deadly choke-damp of the coal-mines. It is also a product of respiration, fermentation, and putrefaction, which is nothing more than slow combustion. It is easily prepared by acting on a carbonate, such as chalk or marble, with nitric, sulphuric, or hydrochloric acid, in a gas-generating apparatus. The carbonate of lime is converted into chloride of calcium, and the carbonic acid escapes as gas. Carbonic acid is known in the solid, liquid, and gaseous states. By a pressure of thirty atmospheres at 32° Fahr., it is liquefied, the pressure required decreasing as the temperature gets lower. Liquid carbonic acid is colorless, insoluble in water and fatty oils, but mixing in all proportions with ether, alcohol, bisulphide of carbon, naphtha, and turpentine. At 94° Fahr. it solidifies into a vitreous transparent mass; and is used, in conjunction with ether and bisulphide of carbon, for producing intense cold. Gaseous carbonic acid is colorless, possessing a slightly acid smell and taste. At ordinary temperatures it dissolves in water in the proportion

of bulk for bulk. By pressure, water may be made to take up great quantities of the gas, the same volume being always absorbed, no matter how great the pressure may be. Upon the removal of the pressure, the gas escapes in bubbles. When inhaled, carbonic acid produces death, even when much diluted. A lighted candle is generally used to test an atmosphere suspected to contain carbonic acid; but it is found that air that will support combustion will contain sufficient of this gas to cause insensibility and dangerous illness. The ill effects of crowded rooms are owing to the systemic depression produced by small quantities of carbonic acid. Though a feeble acid, and easily separable from its combinations, carbonic acid unites with the metallic oxides, forming a very numerous and important class of salts, the carbonates, descriptions of which will be found under the headings of their bases. The carbonates of the alkalies are soluble in water, the carbonates of the other metallic bases being for the most part insoluble, except the water is highly charged with carbonic acid. Hard water contains carbonate of lime or magnesia, held in solution by the carbonic acid contained in the water; hence, when the gas is dissipated by boiling, the carbonate of lime is precipitated, incrusting the vessel in which it has been boiled.

Carbonic acid gas or choke-damp, is a compound of one part of carbon with two parts of oxygen. It is colorless, and much heavier than atmospheric air, a property which gives it a dangerous tendency to collect at the lower parts of any inclosed spaces in which it may be disengaged. Old wells, brewers' vats, the holds of ships, etc., are all liable to become the receptacles for carbonic acid gas, which, formed from some decomposing vegetable matter, lies like a stratum of water at the bottom of the receptacle. Should any one incautiously descend, so as to become enveloped in the carbonic acid atmosphere, respiration is either instantly stopped by spasmodic closure of the chink at the upper portion of the windpipe, and complete suffocation is the consequence; or if the gas is sufficiently diluted with air to be drawn into the lungs, it speedily manifests its narcotic effects upon the system, and the person quickly falls in a complete state of stupor. The respiration becomes labored, and after a time ceases; the countenance is livid or pale, and there may be convulsion, and frothing at the mouth. In such a case, the body of the individual must be removed, if possible, and as soon as possible, from the poisonous atmosphere, or the latter must be destroyed or dispersed. The many fatal accidents which have occurred from persons venturing rashly into old wells, and such like places, might be a warning for the future, and prompt the invariable employment of the simple test of lowering a lighted candle into the suspected place. If the flame be extinguished, the atmosphere is certainly destructive to life; if

it burn even with a feeble and diminished intensity, there is danger. Of the various modes for destroying a carbonic acid atmosphere, none is more speedily effective than the introduction into it of newly-slaked lime, either spread upon a board, or mixed with water, and dashed into the place; fresh lime, having a powerful affinity for carbonic acid, quickly absorbs it. In the absence of lime, a quantity of fresh water dashed freely down, so as at the same time to absorb the gas and promote circulation of air, will be serviceable; or large bundles of combustible material, which will cause currents of air, may, when blazing freely, be thrown in. Caution in the first instance, is the best preservative; but in the event of an individual dropping in an atmosphere of choke-damp, it is perfectly useless for others to rush in to bring him out; they can no more exist in it than he could, and in stooping to lift a fallen body, they become all the more thoroughly immersed in the poisonous gas. Instead of rashly sacrificing life in the ill-directed endeavor to rescue another, let those who are present dash bucket after bucket of water or weak lime and water into the place, and on the fallen person, until the unextinguished flame tokens that the fatal atmosphere is weakened at least; and when they do venture in, tie over the mouth a cloth soaked in lime-water, in a weak solution of caustic potash, or of simple water if these cannot be obtained.

In cases of suffocation from immersion in choke-damp, cold water should be dashed freely over the individual as soon as removed into the open air, and this measure, succeeded by heat applied to the surface, stimulant embrocations to the chest, spine, etc., stimulant injections, and ammonia held at intervals to the nostrils, whilst artificial respiration is at the same time brought into action, and steadily persevered in for some hours. (See DROWNING.)

Carbonic acid is produced during fermentation, or by the slow decomposition of vegetable matter, such as damp straw, sawdust, wood chips, etc. It is the gas disengaged in effervescing liquors generally; it is also produced along with other vapors of which carbon forms a constituent, in the burning of charcoal.

Poisoning by charcoal fumes, either by design or accident, is not an unfrequent occurrence. In the latter case, it usually occurs from persons ignorantly retiring to sleep in a closed-up room, in which burning charcoal is used as a means of warmth. The carbonic acid, and other fumes disengaged, act slowly and insidiously, and exert so powerful a narcotizing effect, that those exposed to the influence are quickly rendered unable to remedy the circumstances, and perfect insensibility ensues. Too often it happens, that the discovery of the accident does not take place until morning, long after it is too late to remedy the fatal effects;

the sufferers are usually found dead. If living, they will probably be perfectly insensible; the countenance pale and livid. Immediate removal to the open air, and free exposure to its influence by removal of the greater part of the clothing, is the first proceeding, and the treatment recommended in cases of poisoning from choke-damp is to be followed. Carbonic acid is largely evolved in the process of lime-burning, and persons who have incautiously slept in the immediate neighborhood of a kiln have been destroyed by it. The poisonous contamination of the air in crowded assemblies has already been treated of in the articles, *AERATION, AIR*, etc.

There is yet another source of poisoning by carbonic acid, which occurs when it is largely given off from fluids taken into the stomach in a state of fermentation. This accident is said by Liebig to happen in Germany in consequence of persons drinking wine whilst it is fermenting; the generation of the carbonic acid is stimulated by the heat of the stomach, and it is given off in such quantity as to permeate even the lungs, causing suffocation. The best remedy is ammonia, both inhaled and taken into the stomach. (See *AMMONIA*.)

In medical practice, carbonic acid is given in the form of effervescing drinks. Some mineral waters contain it naturally; soda water, and other similar fluids, are mechanically impregnated with the gas; it is, too, very frequently given as disengaged from one of the carbonates of the alkalis by means of an acid. In most cases, the action of carbonic acid, given in this way, on the stomach, is very beneficial; it appears to be at once stimulant and sedative, and no remedy is more generally useful in cases of vomiting; it is an agreeable form of medicine to most persons. When effervescing drinks are given to persons confined to bed, they should always sit up for a few minutes after the draught is swallowed, to allow of the eructation of the air, which not being got rid of in a horizontal posture, may produce uncomfortable distension. Externally it is useful as a local anæsthetic in painful affections, as cancer, etc. (See *AERATION, AIR, BLOOD, CARBON, OXYGEN, EFFERVESCENCE, VENTILATION, RESPIRATION*.)

CARBONIC-OXIDE, *kar bon'-ik oks'-id* (CO),—equivalent 14, specific gravity 0.967. Carbonic oxide is produced when carbonic acid is passed over red-hot charcoal; and this gas is formed during the combustion of almost every organic substance. The first result of combustion is, of course, carbonic acid, which, passing over the red-hot coals or wick, as the case may be, parts with an equivalent of its oxygen. The gas, however, is inflamed as fast as it is formed, and reconnected with carbonic acid. It is generally prepared by the decomposition of oxalic acid by sulphuric acid. Oxalic acid consists of C_2H_3 , united to an

equivalent of water, without which it does not appear to be able to exist. The sulphuric acid abstracts this equivalent of water, leaving the C_2H_3 at liberty to separate into CO, carbonic oxide, and CO_2 , carbonic acid. The latter is absorbed by passing the mixed gases through milk of lime. Carbonic oxide gas thus prepared is colorless and inodorous, burning with a blue flame, and giving rise to carbonic acid. It supports neither combustion nor respiration, one per cent. mixed with air being sufficient to cause dangerous drowsiness. It is now satisfactorily proved that the coma generally resulting in death produced by the combustion of charcoal in close rooms, is due to the formation of carbonic oxide by the carbonic acid formed during combustion being exposed to the action of so much incandescent material. It is a neutral body, has no action on litmus-paper, does not combine with acids or bases, and has never been liquefied; it is slightly soluble in water. (See CARBONIC ACID.)

CARBUNCLE, ANTHRAX, *kür'-bungk-kl*, *an'-thraks* [Lat. *carbunculus*, a little coal]. Carbuncle resembles a boil in many respects, but is larger. It is a hard, inflamed, intensely painful swelling, of any size, up to that of a saucer, or even larger; it is flat on the top, and contains a slough, or mortified portion of cellular tissue, which must be discharged before the disease can subside. After the inflamed swelling has existed for some days, small points of ulceration through the skin on its surface begin to show themselves, they enlarge, coalesce, and at last form one large opening, through which the slough or core is discharged, either entire or broken down and mixed with bloody matter. When all has been got rid of, the cavity begins to fill up from the bottom; and generally in the course of a few weeks becomes entirely healed. Such is the progress of a carbuncle, which does not require interference.

Treatment.—The treatment consists in the first place, of assiduous fomentation, and poultices of bread, oatmeal or linseed meal, and in the open stage, yeast; when the cavity is fairly emptied of sloughs, the poultice must be exchanged for water dressing, which will in all probability require no alteration during the cure. A small carbuncle may thus, as far as the sore is concerned, be simply and safely attended to, but much more may be required. Carbuncle occurs in two very opposite states of system—in those of full habit, and in those of broken constitution. In the former, eight or ten leeches may with advantage be applied round the base of a large incipient carbuncle, and free purging, cooling saline medicines, and low diet be resorted to; should a surgeon be in attendance, he will probably make a free crucial incision to facilitate the exit of the core. In those of broken constitution, the opposite treatment will be requisite—all unnecessary loss of blood must be avoided, and whilst gentle alterative aperients are given, the system must be

soothed by opiates, and supported by quinine or bark, along with strong meat broths, wine or porter. In such constitutions, a carbuncle of any size is a serious, if not unfrequently a fatal affection. Carbuncle is certainly indicative of a deranged state of the system generally, and of the assimilative powers in particular; it more frequently happens too, that a large carbuncle has been preceded by two or three smaller ones, or boils, in succession. The occurrence of these ought always to be taken as a warning; the man of full habit should reduce his diet, meat and stimuli in particular, take exercise freely, and 5 or 6 grains of compound colocynth pill every night, or every second night, for a week or ten days, and a gentle saline aperient in the morning. A tendency to carbuncle in the delicate or aged, must always be regarded seriously, not only as indicative of serious functional disorder of the assimilations, but from the direct danger arising from the disease itself. On this account, it is always desirable that the case should be put under efficient medical care, early, so that, if possible, constitutional treatment may arrest the threatened evil. In the case of a carbuncle of any size being developed on persons advanced in life, of weak constitutional power, the case is too dangerous to be left to domestic management if medical assistance can be procured. If not, the treatment must be carried out as above directed.

The most usual seat of carbuncle is the back part of the body and head, the arms and thighs. (See BoIL.)

CARBURETS, *kär'-bu-rets*. Carburets are now called carbides, the word being more analogous to chloride, iodide, etc.

CARBURETTED HYDROGEN. (See HYDROGEN.)

CARDAMINE, *kär'-da-mine* [Gr. *kardia*, heart or courage, on account of its strengthening properties], in Botany, a genus of plants belonging to the Nat. order *Cruciferae*. *C. pratensis*, the cuckoo-flower, or lady's-smock, is a perennial met with in meadows and moist pastures, blossoming in the month of April and May, when its flowers, which are flesh-colored, white, or light purple, present a very pleasing appearance. Formerly the flowers were used medicinally, as a remedy in epilepsy. The leaves are antiscorbutic, and are sometimes eaten as watercress.

CARDAMOMS. (See ELETARIA.)

CARDIA, *kär'-de-a* [Gr. the heart], is the name given to the superior opening of the stomach, on account of its being situated near the heart.

CARDIAC, *kär'-de-ak*, of or belonging to the heart. Thus cardiac medicines are cordials, or stomachic and stimulant medicines, supposed to stimulate or strengthen the heart.

CARDIAC ORIFICE. The name applied to the upper orifice of the stomach, where the œsophagus terminates. The lower opening of the stomach receives the appellation pylorus.

CARDIALGIA, *kär-de-al'-je-a*, [Gr. *kardia*, and *algos*, pain], denotes pain or an uneasy sensation in the stomach, accompanied with anxiety, a heat more or less virulent, sometimes attended with oppression or fainting, and frequently with an inclination to vomit, or a plentiful discharge of clear lymph-like saliva. (See DYSPEPSIA, HEART-BURN.)

CARDITIS, *kar-di'-tis* [Gr. *kardia*, the heart, terminal *itis*], in Pathology, denotes inflammation of the heart. It is characterized by pain in the region of the heart, great anxiety, fever, difficulty of breathing, palpitation, cough, irregular pulse, and fainting. It is applied properly to inflammation of the muscular tissues of the heart itself; but this is a form of disease that rarely occurs alone, being usually accompanied by *pericarditis*, or inflammation of the pericardium, or by *endocarditis*, or inflammation of the lining membrane of the heart. The symptoms and treatment in each case are similar. (See HEART, DISEASES OF THE.)

CARDUUS, *kär-du-us* [Lat. a thistle], the thistle, a genus of plants belonging to the Nat. order *Compositæ*, consisting of numerous species, some of which are noble-looking flowers. *C. benedictus* and a few others have been used in medicine as tonics and febrifuges.

CARE OF CHILDREN. (See CHILD, CHILDREN.)

CARIES, *ka'-re-eez* [Lat. rottenness], is a disease of the bones analogous to ulceration of the soft parts. It differs from necrosis, in that, in the latter, the bone is destitute of vitality, which is not the case when it is simply carious. Necrosis corresponds to mortification of the soft parts. Caries most frequently attacks the bones of the spine; but it may affect any of the bones, especially such as are of a spongy texture, as the carpal or tarsal bones, or the heads of the long bones, where they form articulations. The young, or those of a scrofulous habit of body, are most subject to this disease.

Cause.—The disease is generally the result of wounds, blows, exposure to severe cold, or a bad condition of the body, but sometimes it supervenes without any assignable cause.

Symptoms.—It begins with inflammation, usually attended with a dull, heavy pain and weakness in the part affected. In course of time an abscess forms, which, if not arrested, at length bursts and discharges a thin fluid containing particles of the bone. In caries of the vertebræ, curvature of the spine takes place, more or less, according to the vertebræ affected, and paralysis generally sets in. At the articulation of the bones, the part enlarges, the cartilages become affected, and amputation or excision of the joint is often necessary, in order to save the patient's life.

Treatment.—Much may be done in arresting the progress of this disease, at least in its earlier stages. For this purpose, the patient should be strengthened by good air and nourishing diet, at the same time that rest is enjoined: the state of the stomach and bowels should also be attended to. The former may be invigorated by the administration of citrate of iron and quinine, in doses of 3 grains, before each meal and at bedtime, and the latter be kept gently open by a mild saline aperient daily, or one tablespoonful every evening of the excellent cathartic elixir prepared by Wyeth, of Philadelphia. In the local treatment of the disease, blisters, leeches, and issues are to be employed. The abscesses are best left to nature, unless they are productive of much uneasiness, in which case they should be promptly opened by a medical man. When they have burst, the exfoliation of the diseased part should be expedited as much as possible, or when practicable the whole of the diseased portion should be removed by a saw or gouge, so that the healthy portions may granulate and heal. (See NECROSIS.)

CARMINATIVES, *kar-min'-a-tivz* [Lat. *carmen*, a charm; Fr. *carminatif*], is a term applied to certain substances which have the power of dispelling flatulence, or relieving pain in the stomach and bowels. They belong chiefly to the vegetable kingdom; as, cardamoms, peppermint, ginger, anise, and caraway seeds, and other aromatic stimulants.

CARO, *ka'-ro* [a Latin word signifying flesh], is frequently used in medicine, as well as many of its compounds; as, *carneæ columnæ*, the fleshy columns or muscular fasciculi within the cavities of the heart; *carneous*, fleshy, applied to some muscles of the heart; *carnicula* (dim.) a small fleshy substance; *carniformis*, having the appearance of flesh; *carnivorous*, flesh-devouring, applied to animals that live on flesh; *carnosus*, fleshy.

CAROTID ARTERY, *ka-rot'-id ar'-te-re* [Lat. *arteria carotidea*], is the name given to a considerable artery on each side of the neck. It is so called from the Greek verb *karoo*, I cause to sleep, because, if tied or compressed, the person becomes comatose, and has the appearance of being asleep. The right carotid arises from the *arteria innominata*, the left from the aorta. The left is thus rather longer than the right, and is, in general, somewhat smaller. They ascend backwards and outwards into the neck, and, when opposite the *os hyoides*, each of them divides into the external and internal carotid arteries; the former proceeding to the face and parts without the cranium, the latter to those within. The external carotid afterwards divides into ten branches; viz., the superior thyroid, lingual, lateral, occipital, muscular, pharyngea ascendens, posterior auris, transverse facial, temporal, and internal maxillary. The internal carotid enters the cranium by a somewhat tortuous course,

and afterwards separates into four branches—the ophthalmic artery, and the anterior, posterior, and central arteries of the brain.

CARPHOLOGIA, *kär-fo-lo'-je-a* [Gr. *karpbos*, the nap of clothes, and *lego*, I pluck], is the picking of the bedclothes sometimes observed in persons in the delirium of a fever, and regarded as a very dangerous symptom.

CARPUS, *kär'-pus* [Gr. *karpos*], is a term in Anatomy applied to the wrist, or that part of the upper extremity between the forearm and the hand. The carpal bones, or bones of the wrist, are eight in number, and are arranged in two rows—a superior and inferior, each containing four bones. In the superior row, counting from without inwards, are the scaphoid or navicular, the lunar, cuneiform or pyramidal, and pisiform bones; and in the interior, the trapezium and trapezoid bones, the os magnum, and the unciform bone. These bones are connected with each other, with the metacarpal bones, and with the extremities of the radius and ulna, by numerous ligaments. (See ANATOMY.)

CARRAGEEN, OR IRISH MOSS. (See CHONDRUS.)

CARRARA WATER, *kar-ra'-ra*, is an artificially prepared effervescing water, holding carbonate of lime in solution by means of an excess of carbonic acid. It is useful in some forms of dyspepsia.

CARRON OIL, *kar'-ron oil*, is a mixture of equal parts of lime-water and linseed-oil; it has been much celebrated as an application in burns, having first come into use at the Carron iron works, in Scotland. It is certainly soothing, but need scarcely be employed whilst there are other and less disagreeable remedies at hand. When used, it is smeared over the burnt part by means of a feather. (See BURNS AND SCALDS.)

CARROT. (See DACTUS.)

CARTILAGE, *kär'-te-lāj* [Lat. *cartilago*], in Anatomy, is a white, firm, elastic, glistening substance, intermediate between bone and ligament, and commonly known by the name of gristle. Cartilages are divided by anatomists into—1, articular, covering the surface of the bones, which form movable joints; 2, inter-articular, which are situated between the ends of bones, forming articulations; and 3, connecting cartilage, which unites one bone with another. In some cases, cartilage occurs unconnected with bone, as in the larynx and trachea. In early life, cartilage in various parts occupies the place of bone, and becomes afterwards ossified. The physical properties of cartilage—its firmness, elasticity, and powers of resistance—render it specially fitted for the purposes which it is intended to serve, facilitating the motions of bones, or connecting them together.

CARUM, *ka'-rum* [from *Caria*, in Asia, it being originally found there], a genus of plants belonging to the Nat. order *Umbelliferae*. The

species *C. carui* is the common caraway, a native of most parts of Europe. It is largely cultivated for its fruits, commonly called seeds, which have a pleasant odor and a warm aromatic taste, owing to the presence of about five per cent. of volatile oil. They are much used in confectionery and for flavoring cakes. The oil, obtained by distilling the fruits with water, is used as a corrective adjunct in medicines. Dose of the oil, 2 to 5 drops.

CARUNCLE, *kar'-un-kl* [Lat. *caruncula*, dim. of *caro*, flesh], in Anatomy, is used to denote a small piece of flesh, or a little fleshy excrescence; hence the *caruncula lachrymalis*, a small fleshy, glandiform body, situated on the inner angle of each eye.

CARYA, *ka'-re-q* [Gr. *karuon*, a nut], a genus of plants belonging to the Nat. order *Juglandaceæ*. The species are chiefly natives of North America. *C. alba*, the common hickory, is valuable for its timber, and also for its edible seeds, which are commonly known as hickory nuts. *C. Olivæformis* yields an olive-shaped or elliptical nut, which resembles the walnut in flavor, and is known as the peccan nut. *C. porcina* yields an edible nut called the hog-nut.

CARYOPHYLLUS *kar-e-of'-il-lus*, a genus of plants belonging to the Nat. order *Myrtaceæ*. The most important species is *C. aromaticus*, the clove-tree, a native of the Moluccas, but now grown also in the Isle of France, India, and the West Indies. The cloves of commerce are the unexpanded flower-buds dried. They form a well-known spice, and are much used in medicine on account of their aromatic, stimulant, and carminative properties. The oil of cloves, *oleum caryophylli*, has a strong odor, and a warm, aromatic, and even acrid taste. It is one of the few volatile oils that sink in water, having a specific gravity of 1.05 to 1.06. The infusion of cloves is formed by taking $\frac{1}{4}$ ounce of bruised cloves, and 10 fluid ounces of boiling distilled water, and infusing in a covered vessel for half an hour, and then straining. Dose: of powder, 5 to 20 grains; oil, 2 to 5 drops; infusion, 1 to 2 fluid ounces. The dried unripe fruits are called mother cloves, and are used in China and other countries instead of the ordinary cloves, to which they are very inferior.

CASCARA SAGRADO, *kas-ka'-ra*. The bark has long been known to residents on the Pacific Coast as a sovereign remedy for habitual constipation and dyspepsia, and is likely to prove a very valuable addition to the materia medica. Dose, of the fluid extract, from 15 drops to 1 teaspoonful, three or four times a day.

CASCARILLA. (See CROTON.)

CASEINE, *ka'-se-in* [Lat. *caseus*, cheese], is the nitrogenous principle of milk, which forms a large portion of the curd. Caseine, in the soluble form, appears to be preserved in solution by a small quantity of

alkali contained in the milk. In the coagulated form it is readily obtained by adding dilute sulphuric acid to the milk, which precipitates in the form of a curd. The curd is well washed and dissolved in carbonate of soda, and allowed to stand for twenty-four hours, to let the oil rise to the surface. This is skimmed off, and the caseine precipitated by an acid. The process is repeated a second time, and the coagulum digested with alcohol and ether, and dried. With all these precautions the caseine still contains some saline matter, which cannot be removed. It is also obtained by coagulating the milk with hydrochloric acid. Coagulated caseine is readily dissolved by the alkalies and alkaline carbonates. Caseine also unites with earthy carbonates, and forms insoluble compounds. A very tenacious lute is made by mixing poor cheese with slaked lime. The most remarkable form of coagulation is that produced by the action of the secretion from the mucous membrane of the stomach. This substance is called rennet, and consists of the inner membrane of the fourth stomach of the calf, salted and dried. When a solution of rennet is mixed with milk, a dense coagulum is formed, leaving the whey behind, as a thin, clear, straw-colored liquid. The quantity of caseine in milk varies according to the period of lactation at which the milk is examined; and varies also in different animals. (See FOOD, MILK.)

CASSIA, *kash'-she-a* [from Arab. *katsa*, to tear off, the bark being stripped from the tree], commonly called senna, a genus of plants belonging to the Nat. order *Leguminosæ*, sub-order *Cæsalpinieæ*. The leaflets of several species furnish the important drug senna. Some uncertainty prevails as to the species yielding some of the commercial varieties. That kind commonly known as Alexandrian senna is generally supposed to be derived from *C. officinalis*, var. *lanceolata*, and *C. obovata*. This is the kind most esteemed, but it is frequently adulterated with the leaves of other plants. The common East Indian, Mecca, or Bombay senna is supposed by Royle to be the produce of *C. officinalis*, var. *acutifolia*; Tinnevely senna, a very fine kind, is furnished by *C. officinalis*, var. *elongata*. The above three varieties are those generally used in this country. Senna has a faint, sickly odor, and a mucilaginous, bitter and nauseous taste. It is a common, safe and efficient purgative, and may be given to children, females, and elderly persons with safety. It acts principally on the small intestines, producing copious loose evacuations. Its efficacy is increased by drinking plentifully of diluents, and its nauseous taste is disguised by giving it in strong coffee or tea, or by the addition of sugar and milk. To prevent griping, which it has sometimes a tendency to produce, it is frequently conjoined with aromatics, as coriander, or ginger. It is usually given in the form

of infusion, often in combination with a saline purgative, as sulphate of magnesia, or Epsom salts.

The infusion is formed by taking 1 ounce of senna, 30 grains of sliced ginger, and 10 fluid ounces of boiling distilled water; infuse for one hour in a covered vessel, and strain. Dose, 1 to 2 fluid ounces.

The compound mixture of senna, or black draught, is formed by dissolving 4 ounces of sulphate of magnesia and $\frac{1}{2}$ an ounce of extract of liquorice in 14 fluid ounces of infusion of senna, with a gentle heat; then add $2\frac{1}{2}$ fluid ounces of tincture of senna, 10 fluid drams of compound tincture of cardamoms, and a sufficiency of infusion of senna to make 1 pint. Dose, 1 to $1\frac{1}{2}$ fluid ounces.

For tincture, take $2\frac{1}{2}$ ounces of senna, broken small, 2 ounces of raisins, freed from seeds, $\frac{1}{2}$ ounce each of bruised caraway and coriander fruit, and 1 pint of proof spirit; macerate for forty-eight hours in a closed vessel, and then strain. Dose, 1 to 4 teaspoonfuls.

The syrup and the confection are very useful and palatable preparations of this drug, but they contain a number of ingredients, and the making of them is tedious and complicated. Dose: of the former, 1 to 4 teaspoonfuls; of the latter, 60 to 120 grains; fluid extract, 1 to 2 teaspoonfuls; senna compound, 1 to 2 teaspoonfuls; senna pills, 2 grains each, 1 to 2 pills.

Other commercial varieties are, Tripoli senna, from *C. æthiopica*; Aleppo senna, from *C. obovata*; and American senna, from *C. Marilandica*. Another drug, called cassia pulp, or purging cassia, is obtained from a species of this genus; namely, *C. fistula*. The pulp is contained in the pods. It is of a reddish-black color, of a sweetish taste, and possesses laxative and purgative properties. It is one of the ingredients in the confection of senna. The pods of *C. Brazilianæ* are used in veterinary medicine under the name of horse cassia. The seeds of *C. Absus*, under the names of Chichou and Cismatan, are used in Egypt as a remedy in ophthalmia.

CASSIA BARK AND CASSIA BUDS. (See CINNAMOMUM.)

CASTANEA, *kas-ta'-ne-a*, in Botany, a genus of plants belonging to the Nat. order *Corylaceæ*. The species are familiarly known as chestnut-trees. *C. vulgaris* or *vesca* is the Spanish chestnut, which is much cultivated for timber, and for its edible nuts, which form a principal part of the food of the poor of the south of Europe. *C. Americana*, a native of the Northern States produces a much smaller, but very sweet nut.

CASTILE SOAP. (See SOAP.)

CASTOR, *kas'-tur*, is the dried preputial follicles and their secretion obtained from the Beaver (*Castor Fiber*), and separated from the

somewhat shorter and smaller oil-sacs which are frequently attached to them. The follicles are usually in pairs about 3 inches long, fig-shaped, firm and heavy, brownish, or greyish black, and containing a dry, resinous, reddish-brown or brown, highly odorous secretion, and in great part soluble in rectified spirit, and in ether. It is antispasmodic and stimulant, and has been recommended in various nervous diseases, as hysteria, epilepsy, catalepsy, etc., particularly when attended with uterine disorder. Dose, 5 to 10 grains. The tincture of castor (1 ounce in coarse powder to 1 pint of rectified spirit) is given in doses of $\frac{1}{2}$ to 1 teaspoonful.

CASTOR-OIL. (See RICINUS COMMUNIS.)

CATALEPSY, *kat'-a-lep-se* [Gr. *katalepsis*, from *kata*, down or into, and *lambano*, I seize], in Pathology, is a disease characterized by a sudden deprivation of sensation and voluntary motion. The attack usually comes on without any warning, and during the paroxysm the patient remains in precisely the same position as he was in at the moment of attack. The circulation and respiration are in most cases but little affected; but occasionally they are greatly depressed, and are sometimes even imperceptible. The attack may last only for a few minutes, or it may continue for hours, and even, it is said, for days; and consciousness generally returns with the same suddenness as it left, the patient having no recollection of anything that passed during the attack. This disease bears a great resemblance to the mesmeric state, and, indeed, is so often feigned, that many have doubted whether it really had any existence. There can be little doubt, however, that it is sometimes, though not often, a real disease.

Causes.—The hysterical and melancholic are most predisposed to it; and the paroxysm is frequently induced by some strong mental emotion, or by some disorder of the digestive or secretive organs.

Treatment.—The treatment will necessarily vary in each particular case, according to the general condition of the patient and the probable exciting cause. Generally, however, the system should be strengthened by nourishing diet, gentle exercise, sea-bathing, and tonics. During the attack, the body should be kept warm and excited by gentle friction; mustard poultices should be applied to the soles of the feet, the palms of the hands, and the pit of the stomach; and strong ammonia applied to the nostrils. (See MESMERISM.)

CATAMENIA. (See MENSTRUATION.)

CATAPLASM. (See POULTICE.)

CATARACT. (See EYE, DISEASES OF THE.)

CATARRHAL AFFECTIONS OF INFANTS. (See SNUFFLES.)

CATARRH, CHRONIC, *ka-tär'*—*Causes.*—It is caused generally by a

succession of colds, or follows as a sequel to an acute attack of influenza. In some instances, it appears to affect whole families at once, giving rise to the suspicion that it is contagious.

Symptoms.—Catarrh is frequently a chronic disease, attended with a disagreeable trickling of acrid matter from the posterior nares, or nostrils, into the throat. It is attended with a constant expectoration, and a continual hawking and spitting. In some people, it continues the whole year round, but is particularly aggravated in the autumn and winter, and gives rise to a cough which is very annoying, especially at night. There is often with it a good deal of irritability of the stomach, caused by swallowing more or less of the mucous discharge; and, also, at intervals, fever, giving rise, many times, to the supposition that the patient is becoming affected with consumption. In persons of advanced years, it often ends fatally, and always makes life anything but pleasant. On examining the mouth, the soft palate, the tonsils, and the upper and posterior part of the pharynx are observed to be red, the mucous membrane thickened and exuding a thick pus-like discharge.

Treatment.—The patient must be warmly clothed, and scrupulously avoid all exposure to damp, or intense cold, or sudden changes of temperature, and especially to wet feet. The diet should be moderate and stimulants avoided. If the case becomes aggravated, the patient must be confined to a warm room, and if there be much debility, carbonate of ammonia, in 10 grain doses, every three or four hours, will be found to give much relief. In the chronic catarrh of old people, when much expectoration has accumulated in the air-passages, the following will be very beneficial:

Take of Gum ammoniacum.....	Two drams.
Dilute nitric acid.....	Two drams.
Acacia mixture.....	Eight ounces— <i>Mix.</i>

Give 2 large tablespoonfuls every two or three hours.

Cures have been effected by impregnating the air of the apartment with fumes of benzoin, the drug being thrown on burning coals, or it may be inhaled from a common inhaler, the balsam being placed in boiling water. When the cough is hard and dry, and the expectoration tough and scanty, smoking stramonium affords, many times, almost instant relief. The powdered bay-berry root, used in the shape of snuff, has also been found of much service. Sulphate of zinc, 20 grains to the ounce of water, makes an efficient gargle when the throat is much inflamed. The happiest results have followed the use of the atomizer in this trouble. Any one of the following articles may be used by means of the atomizer, namely: Nitrate of silver, 1 to 10 grains to 1 ounce of water; chlorate of potash, 10 to 30 grains to 1 ounce of

water; tar water, 1 to 2 drams of the officinal solution to 1 ounce of water; or, when the cough is very troublesome, fluid extract of conium, 3 to 8 drops to 1 ounce of water. Each of the above, used separately, is often attended with much success. (See ATOMIZER, BRONCHITIS; CATARRH, OR COMMON COLD; CLOTHING, FLANNEL, INFLUENZA, INHALATION AND INHALERS, OZÆNA, COUGH, ETC.)

CATARRH, OR COMMON COLD, [Gr. *katarrheo*, I flow down]. Catarrh is inflammatory irritation of the mucous membrane lining the air-passages, the nostrils, and bronchi. It usually commences in the former and extends to the latter.

Causes.—Catarrh is generally the result of cold combined with damp, but very frequently of checked perspiration, in consequence of the individual passing directly from a warm into a cold atmosphere, and, we believe, more frequently by passing immediately from a cold into a warm atmosphere. It is, too, not improbable that the recently discovered agent, ozone, when it exists to excess in the atmosphere, exerts a violent effect upon the respiratory membrane. Catarrh is unquestionably the effect in many cases of unavoidable atmospheric changes and influences, but it is much oftener the result of carelessness or imprudence—of carelessness in not guarding the body against the effects of our changeable climate, and particularly the neglect of wearing flannel or some woollen material next the skin, which is the very best preservative. Rooms, in the house, too warm, and exposure to the air insufficiently clothed, are fertile sources of catarrhal affection, especially in children. Insufficient protection to the feet—and consequent dampness and “cold feet”—is another. (See COLD FEET.) There is, too, in females, the exposure of the chest, after heated ball-rooms, public amusements, etc. The use of fur round the neck is not unfrequently the cause of cold affecting the throat: whilst close to the skin, it produces warmth and perspiration, but when the boa or victorine is thrown back, a chill at once ensues. It is not meant to controvert the use of fur, but to guard against the incautious and sudden relinquishment of the protection.

Symptoms.—Catarrh commences with feverish symptoms more or less severe, shivering followed by heat. A peculiar dryness and heat of the lining membrane of the nostrils is followed by a discharge of thin, acrid, watery fluid, “a running at the nose,” and with this there is intense headache between the eyes, or the throat may be first affected, or the chest itself may be directly attacked—though if not, it will quickly become so; the windpipe feels as if raw; there is frequent cough, dry and harsh, or with thin expectoration, and the breathing is oppressed.

Treatment.—The first measure in incipient cold, is to restore and

excite the action of the skin, to get free perspiration. This is best accomplished by the vapor or warm bath; but if these cannot be had, the best remedies are, hot water to the feet, almost entire abstinence from food, rest in a warm bed, hot drinks, and one or two doses of some medicine to induce moisture on the skin. 6 or 8 grains of Dover's powder, repeated in two hours, if necessary, or 1 tablespoonful of the solution of acetate of ammonia, commonly known as spirit of mindererus, every two hours, will invariably produce perspiration, if the warm bath, the warm bed, and the hot drinks should fail. This is what is known as the *moist cure*. The following method of treatment, recommended by as high an authority as Dr. C. J. B. Williams, of London, is known as the *dry cure*, and has many enthusiastic advocates both in and out of the profession. He says: "It is the common practice to drink copiously of tea, gruel, or some other diluent during a cold; as long as this promotes perspiration it is of some utility, and although it augments the flow from the pituitary or nasal membrane, it has the effect of diminishing its acrimony by dilution. It is the acrimony of this discharge which reacts on the membrane, keeps up the inflammation, and its accompanying disagreeable symptoms. On this circumstance depends the efficacy of a measure directly opposed to that just noticed, but to the success of which we can bear decided testimony—we mean a *total abstinence from liquids*. To those who have the resolution to bear the feelings of thirst for thirty-six or forty-eight hours, we can promise a pretty certain and complete riddance of their colds, and what is, perhaps, more important, a prevention of those coughs which commonly succeed to them. Nor is the suffering from thirst nearly so great as might be expected. This method of cure operates by diminishing the mass of fluid in the body to such a degree that it will no longer supply the diseased secretion. Anything that will contribute to reduce the quantity of fluid in the body will assist in the plan of cure and shorten the time necessary for it to take effect. It is, therefore, expedient to begin the treatment with an aperient—a tablespoonful of castor-oil or a couple of ounces of infusion of senna, followed by the sweating mixture mentioned above, as is usual, and this is the more necessary when any fever attends; but beyond this no further care need be taken, and the individual can devote himself to his usual employments with much greater impunity than under the ordinary treatment. The coryza begins to be dried up about twelve hours after leaving off liquids; from that time the flowing to the eyes, and fulness in the head becomes less and less troublesome; the secretion becomes gelatinous, and between the thirtieth and the thirty-sixth hour ceases altogether; the whole period of abstinence needs scarcely ever to exceed forty-eight hours.

“It is then as well to return to the *moderate* use of liquids, as the first indulgence is apt to be excessive. It is not necessary to limit the solid food any more than to that which is plain and simple, except where there is an acceleration of the pulse, or gastric irritation, in which cases animal food should be abstained from. For the sake of comfort in mastication, the food should not be of the driest kind. Thick puddings and vegetables, with or without meat, will be the best dinner; and toasted bread or biscuit, *merely moistened* with tea, or other liquid, for other meals. A single cup of tea is sufficient to bring back the coryza immediately, after twelve hours abstinence has removed it.”

Preventive treatment.—The best preventive against cold is the daily use of the cold bath, and this is the best means that can be adopted by those who have an habitual tendency to this disease. It should, however, be begun in summer, and the water ought to be at first tepid, but after being begun, the practice may be continued through the winter. The sponge bath is preferable for those in delicate health. The avoidance of the causes mentioned in the first part of this article is indispensable, especially with those having a tendency to this trouble. Flannel, worn next the skin during all seasons, is particularly important: in warm weather, wearing light flannels rather than dispensing with them altogether. (See CATARRH, CHRONIC; COLD, BRONCHITIS, SNUFFLES, COUGH, INFLUENZA, CLOTHING, FLANNEL, ABLUTION, BATHS, DAMP, ETC.)

CATECHU, *kat'-e-ku* [Jap. *kate*, a tree, *chu*, juice], called *kut* or *kutch* by the natives of India, is properly an extract prepared from the inner brown-colored wood of the *Acacia Catechu*; but the term is now applied also to other extracts similar in appearance and properties. Some of the catechu of commerce is prepared from the kernels of *Areca Catechu*, and a kind called *Gambir*, or *Terra japonica*, from the leaves of *Uncaria Gambir*. This last, *Catechu pallidum*, or pale catechu, is the only kind that is now officinal. It is imported in cubes about an inch in diameter, or masses formed of coherent cubes. Externally, they are brown or reddish-brown; internally, ochreous, or pale brick-red, breaking easily with a dull earthy fracture. The taste, bitter, very astringent, and mucilaginous, succeeded by slight sweetness. It is entirely soluble in boiling water. Catechu is used as an astringent externally or internally. It is useful as a lotion, or ointment for indolent or ill-conditioned ulcers, where there is copious discharge; also as a gargle in relaxed sore throat, and as a local application to sore nipples. Internally, it is used in diarrhœa unaccompanied by inflammation, in doses of 10 to 30 grains. The infusion is made of 160 grains of the powder, and 30 grains of bruised cinnamon-bark, with

10 fluid ounces of distilled boiling water—dose, 1 to 2 fluid ounces; tincture, $2\frac{1}{2}$ ounces of the coarse powder, and 1 ounce of cinnamon-bark bruised, macerated for seven days in a close vessel with 1 pint of proof spirit, and then strained—dose, 1 to 2 fluid drams, or 1 to 2 teaspoonfuls. Catechu lozenges are made of 720 grains of the powder, 25 ounces of refined sugar in powder, 1 ounce of gum acacia in powder, 2 fluid ounces of gum acacia, and a sufficient quantity of distilled water, mixed together, divided into 720 lozenges, and dried in a hot chamber with a moderate heat—dose, 1 to 6 lozenges. Catechu contains a large proportion of tannin, very similar in properties to that of galls, also a peculiar principle called *catechine*. (See ACACIA, ARECA.)

CATHARTICS, *kə-thär'-tiks* [Gr. *kathairo*, I purge or purify], in Medicine, is a term applied to such substances as, taken internally, cause a special irritation of the intestinal canal, and increase the quantity or number of the alvine evacuations; in other words, have a purgative effect. Those which act mildly are usually called *aperients* or *laxatives*; those which act violently, *drastics*; those which produce copious watery stools, *hydragogues*; those which favor the secretion of bile, *cholagogues*. Cathartics act upon the system in different ways, and serve different purposes; and in each case that has to be selected which is best fitted to meet the circumstances. *Laxatives* are employed when we wish to evacuate the bowels with the least possible irritation, and include manna, cassia pulp, tamarinds, prunes, honey, confection of senna, carbonate of magnesia, sulphur, cream of tartar, bicarbonate of soda, or baking soda, and the fixed oils, as castor, almond, olive, linseed oil. *Saline*, *antiphlogistic*, or *cooling* cathartics increase the peristaltic motion of the alimentary canal, and augment the effusion of fluids, thereby giving rise to watery stools. They are the sulphates of magnesia, potassa, soda, etc. More active than the above are the *acrid stimulants*, as senna, rhubarb, aloes. Senna is employed where we want an active but not very irritant or acrid purgative; rhubarb is used in debilitated and relaxed states of the canal, and has a subsequent tonic and astringent effect; aloes is slow in its effect, and acts more particularly upon the colon and rectum. *Drastic* cathartics are such as jalap, scammony, camboge, croton oil, colocynth, elaterium, etc. They act powerfully and rapidly upon the bowels. *Mercurial cathartics*, as hydrargyrum cum creta, pilula hydrargyri, and calomel, are especially valuable from acting on the liver. Podophyllin acts similarly upon the liver. Cathartics serve not only to clear the alimentary canal, they purify the blood by draining off much of the serous portion, they stimulate the action of the absorbents in all parts of the body, and act as counter-irritants in inflammatory disorders. “Purging,” says Sir Thomas Watson, “is an

expedient which in cases of violent inflammation or high general fever, should scarcely ever be omitted. To keep the bowels what is called open, forms indeed a part of the antiphlogistic regimen; but in acute inflammatory diseases, active purging is of very great service. These two points are gained by it: the intestinal canal is freed from accumulated feces or other matters, which, by their bulk or their acrimony, might prove irritating; and at the same time depletion is carried on by means of the serous discharge which is produced from that large extent of mucous surface. There are some cases of inflammation in which the operation of purgative medicines is of especial benefit, as in *inflammatory affections of the head*, either external or internal, of which part these medicines assist or cause depletion in a very sensible manner."

Purgative or aperient medicines are, unquestionably, much more generally had recourse to, both by medical men and the public, than any other form of remedial agents, but while it is undoubted that their use is great, it is also certain, that they are and have been very greatly abused. It is intended to consider, first, the use of aperients, and secondly, the abuse. Under such articles as ALIMENTARY CANAL, DIGESTION, etc., it has been sufficiently explained, how the food mass, after undergoing its principal digestion in the stomach, is gradually propelled through the entire tract of the bowels, and how, during this propulsion, its nutrient constituents are absorbed from it, the refuse being left for discharge; it has also been explained, that the discharge from the bowels does not consist simply of the food refuse, but contains also various secretions and excretions, thrown out into the bowels—from the general system—which excretions cannot be retained in the system without injury to the health.

From these considerations, it must be obvious to all how great the importance not only that the bowels should be active as regards the excretions into them, but as regards their own discharge, both of these excretions and of the food refuse. When the bowels are inactive in these respects, the state is termed constipation, or costiveness. As, under the latter term, the reader will find the evils which result from this condition, and also its most frequent causes, etc., sufficiently explicitly stated, it is unnecessary to repeat the information here. Under the same article, will be found an explanation of those general remedies which are most useful in removing the condition; and, indeed, when they prove sufficient, are certainly to be preferred to remedial agents; when they do not prove sufficient, either as temporary or permanent means of relief, the purgative or aperient medicines must be employed—under the general rule, that they should never be used stronger than requisite. By this it is not meant, that because manna, or sulphur, or magnesia,

are classed in the laxatives, they are always, when possible, to be substituted for the purgative aloes, or castor-oil, or rhubarb, or senna, such a distinction could not be observed without other and greater counterbalancing inconveniences, but the rule should be, that relief to the bowels is to be afforded with as small an amount of purgative action as possible, unless that purgative, or, in other words, lowering action, is called for as a part of the treatment, as it is in persons of very full habit of body, etc.

Where aperient medicines are either taken or given domestically, there is often too little care in the selection: unless it be in pregnancy, or in consequence of individual experience, the idea seems to prevail with many, that one aperient is as good as another—this is far from being the case.

Except in persons whose bowels are very easily acted upon, or in such cases as those where the aperient is taken rather to give additional action than to open the bowels, the “laxative” aperients are scarcely sufficient as general aperients; those classed as purgatives, and the cathartic colocynth, under the form of its well-known compound pill, are in daily use.

There are few ailments in which increased action of the bowels is called for, in which, one or other of the laxative remedies in the list will not be applicable. Aloes is valuable for certainty of action on particular portions of the bowels, for the small bulk of its general dose, for its tonic bitterness and continued effect even after frequent repetition, but must be used, carefully, in pregnancy, piles, and other affections situated about the lower part of the canal. Castor-oil is recommended by its safety in almost all cases, by its certain, perfect action, and like aloes, by its not losing effect by repetition; but, unfortunately, it is too often the medicine most disliked and sickened at. Epsom salts require much discretion in use, but have deservedly thrown Glauber salts into disuse. Jalap is certain and active, but is apt to gripe and to sicken, and its bulk is an objection. Mercurials alone, or followed by castor-oil or senna, or combined with aloes, rhubarb, or colocynth, most valuable, are most abused. Rhubarb, mild, and with some persons effectual, is also tonic, but is apt to heat, and its bulk and taste are an objection, especially with children. Rochelle salt, similar to Epsom salt in action, is pleasanter. Senna, *the* medicine of the nursery, it is invaluable; if properly prepared, is safe and certain.

Colocynth, in its well-known compound pill, forms part of the most generally used and useful purgative in costive habits. Scammony is, in many of the affections of children, especially combined with a mercurial, our most valuable purgative, and is recommended by the small bulk of

its dose. (See articles on all the above-mentioned.) Purgatives, however, are used, not only as a means of clearing the bowels of their contents, but also as agents for the relief of those organs, such as the liver, which are closely connected with the bowels; and further, as remedies calculated to relieve distant parts, or the system generally. Thus, in many head affections, free purging is one of our most powerful remedies, in congestion of the liver it is most serviceable; in overfulness of the system at large, it relieves greatly. To the above fact, nature strongly points in those cases in which sudden and striking relief often follows an attack of spontaneous purging or diarrhœa.

The abuse of aperient medicines, owes its origin, probably, to a variety of causes. Constipation, either alone, or as a concomitant of disease, is so obvious and common a symptom; it so often occasions distress, or at least uncomfortable sensations, its removal is generally so simply effected, and often is so sensibly felt as a relief, that it cannot be matter of surprise, if both doctor and patient, habitually almost, look to the action of the bowels by purgative medicines, as almost the requisite preliminary to all other treatment, and within certain limits they do right; but the fatal facility of the treatment, assisted moreover by the powerful advocacy which it has received in years gone by, has certainly produced a far too general use of aperients as purgatives—not simply in the treatment of acute disease, but as a general rule of daily life. If the question be put: Which is the greater evil of the two, to have the bowels habitually confined, or habitually to take aperient medicines? There can be no question, if the choice *must* lie between the two evils, that the latter is the lesser one; but there are few cases in which the choice is so circumscribed. The bowels probably are confined, but they are so because the general conditions requisite for their healthy action (see COSTIVENESS) are neglected, and because the aperient *medicine* is used as the readiest substitute for a little trouble and perseverance. Thus used, the aperient is abused, and injury, more or less, is inflicted upon the system according to the nature of the medicine, the frequency of its use, and the strength of the dose. One most general effect of the abuse of aperients, is the weakened digestive power of the stomach, another the weakness of the system at large; and a third, not unfrequently, is continued irritation of some portion of the alimentary canal. The weakened digestion which follows the abuse of aperients may not be obvious at first; indeed, if the digestive organs have been overloaded and oppressed, instead of being weaker after an aperient, they are actually more active, and this apparent increase of activity is very apt to lead to a too frequent renewal of the remedy, and too often—trusting in the remedy—to a continuance of those habits of excess which caused the

first disorder. (See *DYSPEPSIA*.) The debility of the system which follows the abuse of aperients, is the natural result of the digested food mass being hurried too rapidly through the bowels to admit of its nutrient portion being taken up and conveyed into the system; debility is also the result of the too frequent employment of purgatives, such as the salines, which increase unnecessarily the discharges—especially of the serous portion of the blood—into the bowels. Further, the too frequent use of purgatives irritates the bowels by depriving them of their natural protective mucus; in this way ulceration may result.

As a natural consequence of the food mass and of the secretions and excretions, such as the bile, being hurried too quickly into and through the bowels, and also of the mucus being carried off too abundantly, the stools, under the continued use of purgatives, assume an unhealthy character; perhaps contain too much bile, etc., and in consequence of this unhealthy appearance, and with a view to its correction, persons are too often induced to continue the very cause of its production, and go on purging. This is a very common case. (See *APERIENT*, *MINERAL WATERS*, *BILIOUSNESS*, *DIGESTION*, *DYSPEPSIA*, *COSTIVENESS*.)

CATHETER, *kath'-e-tur* [Gr. *katiemi*, I put down or into], is the name of an instrument employed for drawing off urine by introducing it into the bladder. It is a long tube, usually formed either of silver or gum-elastic, open at the handle, and having at the sides, near the point, holes or eyes into which the urine flows, and is thus carried off. Those for males are usually from ten to eleven inches in length, and considerably curved towards the point; those for females are much shorter and nearly straight. The introduction of the catheter is an operation requiring a considerable degree of tact and skill, and should be done with great caution.

CATNIP, *CATNEP*. (See *NEPETA CATARIA*.)

CATOPTRIC EXAMINATION OF THE EYE, *ka-top'-trik*. When a lighted candle is held before a sound eye, or one affected with amaurosis, three images are seen: the first from the cornea, the other two from the anterior and posterior surface of the crystalline lens; but if either of these structures have become opaque, the image from it is either dimmed or altogether absent. It is used in the diagnosis of cataract.

CAUDA EQUINA, *kaw'-dā e-kwi'-nā* [Lat. for horse's tail]. The spinal marrow, at its termination about the second lumbar vertebra, gives off a large number of nerves, which, when unravelled, resemble the horse's tail: hence the name.

CAUDLE, *kaw'-dl* [Fr. *chaudeau*, from, Lat. *calidus*, warm], is a kind of warm broth, composed of gruel, wine or beer, sugar, and spices,

and given to the sick. A good mode is to beat up one egg in a wine-glassful of sherry, and add half a pint hot gruel, and flavor with nutmeg, lemon-peel and sugar.

CAUL, *kawl* [Lat. *caula*, a fold], is a thin membrane, sometimes found encompassing the head of a child when born. This was formerly regarded with great superstition, it being held to denote that the child so born would be very fortunate, and escape many dangers. A caul was also believed to confer the like benefits upon its possessor; and hence they were frequently sold at a high price. They were regarded by seamen as an infallible preservative against drowning.

CAULIFLOWER, *kol'-e-flow-ur*, a vegetable of the cabbage tribe, agrees better than most other vegetables with those of weak digestion. The addition of melted butter is injurious. (See BRASSICA.)

CAULIFLOWER EXCRESCENCE, *kol'-e-flow-ur eks-kres'-sense*, a highly vascular excrescence, growing about the anus, vulva, or os uteri, producing a watery discharge, and bleeding from the slightest cause. If in the anus, it is often syphilitic.

CAULOPHYLLUM THALICTROIDES. (See BLUE COHOSH.)

CAUSTIC, *kaws'-tik* [Gr. *kaustikos*, from *kaio*, I burn], is applied to such substances as burn or destroy the skin and flesh by acting chemically upon them. The caustics principally used in practice are the nitrate of silver, or lunar caustic, and potassa fusa, common caustic, or caustic potash.

CAUSTIC, LUNAR. (SEE NITRATE OF SILVER.)

CAUSTIC POTASH. (SEE POTASH.)

CAUTERIZATION, *kaw'-tur-e-za-shun*, the application of a cautery.

CAUTERY, *kaw'-te-re*, is a burning or searing of morbid flesh by a hot iron or by some lighted inflammable substance, or by caustic medicines, the former mode being termed *actual cautery*, the latter *potential cautery*.

CAVERNOUS RESPIRATION, *kaw'-urn-us res-pe-ra'-shun*, a sound similar to that produced by blowing into a bottle. It is produced by cavities filled with air, existing in the lungs.

CAVITY, *kav'-e-te* [Lat. *cavositas*]. A term applied generally to the hollow parts of the body, as the abdominal cavity, the articular cavities, the thoracic cavity, etc. The cavities of bones are usually named according to some real or fancy resemblance: thus we have glenoid cavities, cotyloid cavities, fossæ, sinuses, etc.

CAYENNE PEPPER. (SEE CAPSICUM.)

CEANOTHUS, *se-an-o'-thus* [a name given by Theophrastus to a spiny plant], a genus of the Nat. order *Rhamnaceæ*. The young shoots of *C. Americanus* are used as an astringent, and in New Jersey the

leaves are employed as a substitute for tea; hence they are commonly known as New Jersey tea. It is astringent, expectorant, sedative, antispasmodic, and antisyphilitic. Used in gonorrhœa, dysentery, asthma, chronic bronchitis, whooping-cough, and other pulmonary affections. It is also useful as a wash gargle for sore mouth. Dose of the decoction, 1 teaspoonful three or four times a day. (See DECOCTION.)

CEDRON SEED. (See SIMABA CEDRON.)

CELANDINE. (See CHELIDONIUM.)

CELASTRUS SCANDENS, *se-las'-trus scan'-dens*. False bitter-sweet, staffvine, waxwork, and climbing bitter-sweet. Belongs to the Nat. order *Celastraceæ*. It is a climbing, indigenous shrub, growing from Canada to Carolina. It must not be confounded with the *solanum dulcamara*, or true bitter-sweet. The bark is the part used in medicine. It is alterative, diaphoretic, diuretic, with some narcotic powers. It is used in secondary syphilis, scrofula, chronic hepatic affections, or liver complaint, cutaneous affections, leucorrhœa, rheumatism, and obstructed menstruation. As an ointment, it is useful in inflamed and indurated breasts of nurses, in prurigo of the vulva, burns, excoriations, etc. Dose of the decoction, 2 to 4 fluid ounces, three times a day; dose of the extract, 5 to 10 grains. (See DECOCTION.)

CELERY, *sel'-ur-e*, an evergreen herbaceous plant, much used as a salad, and is a very wholesome relish, though it sometimes disagrees with persons of weak digestive powers. It is said to have properties which make it an efficient medicine in some diseases of the kidney. (See APIUM.)

CELIBACY. (See MARRIAGE.)

CELLARS. (See HOUSES, SANITARY SCIENCE.)

CELLS, *selz* [Lat. *cella*, a cell], in Physiology, are minute closed vesicles, or bags, formed by a membrane in which no definite structure can be discerned, and having a cavity which may contain matters of variable consistence. These cells, remaining as separate corpuscles in the fluids, and grouped together in the solids, persisting, in some cases, with but little change, in others undergoing a partial or thorough transformation, produce the varieties of form and structure met with in the animal and vegetable textures. In other words, they constitute the elementary form of all organisms, vegetable or animal. The embryo animal, as well as the embryo plant, is, in its early stages, entirely formed of cells of a simple and uniform character; and it is by a gradual transformation in the progress of development that some of these cells become converted into the diversified elements of a complex fabric. Indeed, it is now generally believed that the cell structures are the agents by which nutrition, secretion, and reproduction are carried on. Every cell owes its origin, in some way, to a pre-existing cell. In plants,

the most common mode of multiplication is the subdivision of the original cell into two halves. Sometimes the new cells originate in little bud-like prominences on the surface of the parent cell, which, after a time, become detached and form cells. Cells have properly a spheroidal or rounded shape, but they assume various forms from coming in contact with other cells. The nucleus is a small round or oval body in the interior of the cell, sometimes lying free, but at other times attached to the cell wall, and averaging in diameter, in the animal cells, from $\frac{1}{6000}$ to $\frac{1}{4000}$ of an inch. (See Kolliker's "Manual of Human Histology;" Von Mohl's "Anatomy and Physiology of the Vegetable Cell;" Carpenter's "Principles of Physiology;" Quain's "Anatomy.")

CELLULARES, *sel'-lu-lärz*, plants composed of cellular tissue only, forming one of the two great sub-kingdoms in De Candolle's system of classification.

CELLULAR TISSUE OR MEMBRANE, *sel'-lu-lär*. Cellular membrane, or tissue, or areolar tissue, is the reticular membranous web, which connects the various portions of the body, and fills up the interstices. It is made up of numberless little fibres and bands crossing each other in every direction, and enclosing small spaces, which freely communicate throughout the body. The most familiar exemplification of cellular tissue, and of its free inter-communication, is seen in the blown-up veal of the butcher. In the living body, the areolar tissue contains a thin water or serous fluid, which, when it accumulates in undue quantities, constitutes one form of dropsy, finding its way by permeation through the cellular meshes to the most dependent part of the body.

CEMETERIES, LOCATION, EXHALATION FROM, ETC. (See SANITARY SCIENCE.)

CENTAURY, RED. (See SABBATIA ANGULARIS.)

CENTIGRAMME, *sen'-te-gram*, the one hundredth part of a gramme.

CEPHAELIS, *sef-e'-lis* [from Gr. *kephale*, head], a genus of plants belonging to the Nat. order *Cinchonaceæ*. The annulated root of *C. ipecacuanha* is the officinal ipecacuanha of the British Pharmacopœia. It is known as *true, annulated, Brazilian, or Lisbon ipecacuanha*, and is the only sort commonly met with in this country. It is collected in all seasons of the year, but chiefly from January to March, and is imported from Rio Janiero, Bahia, and Pernambuco. It is in pieces of 3 or 4 inches long, about the size of a small quill, of a greyish or light-brown color, contorted and irregularly annulated. It consists of two parts—a cortical or active portion, which is brittle; and a slender, tough, white-woody centre. The powder is pale brown, with a faint nauseous odor, and a somewhat acrid and bitter taste.

Ipecacuanha, or ipecac, is emetic, expectorant, and diaphoretic. Alterative, in small doses. Some authors suppose it to possess narcotic properties. In doses of $\frac{1}{4}$ of a grain to $\frac{1}{2}$, it acts as a tonic. It is a valuable remedy in acute bronchitis. The symptoms which indicate its use are a short, tickling, paroxysmal and spasmodic cough, to relieve which, small and repeated doses ($\frac{1}{2}$ a grain every hour), are the most effectual. This medicine is one of the safest and most efficient in suffocative catarrh, and can be used with confidence, either in old age or infancy. The paroxysmal and spasmodic cough and whooping-cough are sometimes rendered much milder by its use. Daubenton recommended minute doses of ipecacuanha to be taken in the morning fasting, for the relief of gastric debility, and constipation upon want of energy in the intestines. Fothergill recommended this agent in diarrhoea. It has been held in high esteem as a remedy for dysentery.

Writers of distinction ascribe efficient hæmostatic virtues to this medicine. Mangetus imputes to a dose of 1 dram of ipecacuanha the subsidence of an alarming hemorrhage from the womb, which preceded the expulsion of the ovum in a case of abortion. Dr. Osborne, of Dublin, says that the treatment of simple menorrhagia by ipecacuanha has never yet failed in his hands, and that he has also found it successful in the treatment of bleeding at the nose. Cases of its success in hemorrhage from the lungs, and profuse menstruation, are mentioned by Frank. In intermittent fevers of a bilious type, and still more in the bilious and remittent fevers, the administration of a full emetic dose of ipecacuanha at the outset of the disease, and even for two or more successive days, forms, perhaps, the surest method of moderating the violence and shortening the duration of the attack. It also prepares the way for a successful administration of cinchona.

When given in large doses of 15 to 20 grains, it acts as an emetic and as a purgative; in small doses of a few grains it is expectorant and diaphoretic. Its peculiar properties are principally due to an alkaloid called *emetine*. The wine is formed by macerating for seven days 1 ounce of the bruised root in 1 pint of sherry. Dose: as an expectorant, 5 to 40 drops; as an emetic, 3 to 6 teaspoonfuls. The compound powder is composed of $\frac{1}{2}$ an ounce of the powder, $\frac{1}{2}$ an ounce of opium in powder, and 4 ounces of sulphate of potash in powder. Dose, 5 to 15 grains. This is otherwise known as Dover's powder, and is one of the most valuable of our sudorifics. *Pill of I. with squill*: take 3 ounces of the compound powder, 1 ounce each of squill and ammoniacum in powder, and a sufficiency of treacle to form a mass of the proper consistence. Dose, 3 to 10 grains. The *I. lozenges* contain each a $\frac{1}{4}$ of a grain of I., and a dose is from 1 to 3 lozenges. Dose of fluid

extract, as an expectorant, 5 to 10 drops; and as an emetic, $\frac{1}{2}$ to 1 teaspoonful. Dose of syrup of ipecac, as an expectorant for children, one to twelve years old, 5 to 10 drops: and in croup, 10 drops to 1 teaspoonful every ten minutes till vomiting is produced; and as an expectorant for adults, 20 to 40 drops every two or three hours.

CEPHALALGIA, CEPHALALGY. (See HEADACHE.)

CEPHALIC, *se-fal'-ik*, [Gr. *kephalikos*], is applied to something pertaining to the head. Thus, cephalic medicines are such as are administered for disorders of the head.

CEPHALITIS, OR INFLAMMATION OF THE BRAIN. (See BRAIN, DISEASES OF THE.)

CERA, *se'-ra*, [Lat.] wax, the prepared honeycomb of the hive bee, obtained by dividing the comb and expressing the honey, and then melting the residue in boiling water. The impurities are skimmed off, and the wax is removed from the surface after the water has cooled. It is again melted and strained. This is the *cera flava* or yellow wax. *Cera alba*, or white wax, is formed by bleaching the former, making it fall in a melted state in small streams upon a revolving cylinder, and thus exposing it for some time to moisture, air, and light. Wax is chiefly used in medicine to form plasters and ointments. (See BEESWAX.)

CERASINE, *ser'-a-sin*, [from *cerasus*, the scientific name of the cherry-tree], the portion of the gum of the cherry-tree which is insoluble in cold water.

CERASUS, *ser'-a-sus*, a genus of trees belonging to the Nat. order *Rosaceæ*, sub-order *Amygdaleæ*. Several species or varieties of this genus produce the well-known fruits called cherries. The varieties usually cultivated in our gardens are supposed to have been derived originally from two wild species, *C. avium* and *vulgaris*. Both have white flowers in clusters or nearly sessile umbels, and both are generally regarded as natives of North America, Britain, and of the middle and south of Europe. The timber of *C. avium* is valuable for the purposes of the cabinet-maker, turner, and musical instrument maker; and the leaves have been used as a substitute for tea. The bark of the species *C. cappolim* possesses astringent and febrifuge properties; that stripped from its root is used in Mexico as a remedy against dysentery. The leaves of *C. capricida* contain so much hydrocyanic (prussic) acid as to prove poisonous to cattle that feed upon them. Most parts of the species *C. Laurocerasus*, the cherry-laurel, but especially the leaves and seeds, are poisonous. The poisonous effects are supposed to be owing to a volatile oil containing hydrocyanic acid. Cherry-laurel water, obtained by distilling the leaves with water, is used medicinally for similar purposes as hydrocyanic acid. The kernels of the species *C. accidentalis*,

a native of the West Indies, and others, are used for the purpose of flavoring liquors, such as cherry-brandy, Kirschenwasser, Maraschino, and Noyeau. The species *C. Padus*, or bird-cherry, has similar properties, though less powerful, to those of the cherry-laurel. *C. Virginiana*, the choke-cherry, has astringent and febrifuge properties, and its fruits are commonly mixed with pemmican. The inner bark of the *C. serotina*, the wild or black cherry, common in most parts of the United States and Canada, and improperly classified by some writers as *Prunus Virginiana*, possesses tonic, sedative, and astringent properties. It is useful where it is of importance to impart vigor of action to the system, and yet, to avoid any undue excitement of the heart and blood-vessels, as for instance, during the first stage of convalescence from inflammatory attacks, and in many pulmonary diseases. Its uses are indicated in all cases requiring the use of a general tonic, particularly in cases of the impairment of the constitution by dyspepsia, indigestion, etc.; in dyspepsia attended with neuralgic symptoms, and general debility following inflammatory fevers; in diseases in which debility of the system is united with general local irritation. On account of its gently astringent properties united with its sedative action, it has been found highly beneficial in complaints incident to the summer months, in diarrhœa, chronic diarrhœa, and in preventing the weakness and relaxation of the bowels which produce them. Wild cherry, horehound, lettuce, veratrum, and bloodroot, form a fine compound. It is admirably well adapted to those debilitated states of the system complicated with nervous irritability and cough. It operates with magical efficacy in the convalescent stages of inflammatory attacks, and pulmonary affections. Dose: fluid extract of wild cherry, 2 to 4 teaspoonfuls; fluid extract of wild cherry compound, $\frac{1}{2}$ to 2 teaspoonfuls; prunin, the active principle of cherry, 2 to 6 grains; wine of wild cherry, 1 to 4 teaspoonfuls; ferrated wine of wild cherry, 1 to 4 teaspoonfuls.

CERATE, *se'-rate* [Lat. *ceratum*, from *cera*, wax], an ointment, of which wax forms a component; the hard wax, and fluid oil or lard, when combined, forming a compound of convenient consistence. Simple cerate is formed by melting together equal parts of white wax and olive-oil, and stirring during cooling.

CALAMINE, OR TURNER'S CERATE. (See CALAMINE.)

LEAD CERATE.—Acetate of lead, 5 drams; white wax, 8 ounces; olive-oil, 20 ounces. Dissolve the wax by heat in 18 ounces of the oil, rub up the acetate of lead finely with the remaining 2 ounces, add this gradually to the larger quantity, and stir during cooling.

RESIN CERATE.—Take of resin, 5 ounces; lard, 8 ounces, beeswax,

2 ounces ; melt them together with a gentle heat, and then stir the mixture briskly while it cools.

SOAP CERATE is sometimes useful; it is better procured ready prepared.

CEREALS, *se'-re-qlz* [Lat. *cerealìa*, from *Ceres*, the goddess of corn], is a term applied to the grasses which are cultivated for human food, viz., wheat, barley, rye, oats, maize, and rice. They are for the most part distinguished by the large quantities of starch, nitrogenous compounds, and phosphoric acid, contained in their seeds, and which it is the object of cultivation to develop as much as possible. With the exception of rice they all contain nearly the same amount of nitrogen, in addition to which, wheat possesses a peculiar glutinous substance, called *gliadin*, which renders wheat-flour so well adapted for the making of bread. (See *Food*.)

CEREBELLUM. (See *BRAIN*.)

CEREBRITIS, *ser-e-bri'-tis*, inflammation of the brain. (See *BRAIN*, *DISEASES OF THE*.)

CEREBRO-SPINAL MENINGITIS, OR SPOTTED FEVER, *cer'-e-bro spi'-nal men-in-je'-tis*. An acute disorder, commonly happening as an epidemic, caused by some unknown external influence; sudden in its onset, rapid in its course, and very fatal. It prevailed as an epidemic in Europe during the fourteenth, sixteenth, and seventeenth centuries. The first epidemic in America occurred at Medfield, Massachusetts, in the early part of the present century, and since that time several circumscribed epidemics have been noted in various parts of the continent, particularly in the Southern and Western States. Many cases were seen during the late war, among both the Federal and Confederate troops.

Symptoms.—Nausea, with or without vomiting, severe headache, dizziness, excruciating pains in the nape of the neck, limbs, calves of the legs, and joints, the pulse quick and feeble, the skin moist and cool, the face suffused, and the eyes bloodshot; delirium is generally present, and is not so much violent as it is muttering and wandering; sometimes deep stupor is present from the beginning. From one to three days from the beginning of the attack, an eruption of dark red or purple spots is seen upon the neck, abdomen, back, arms, legs, and sometimes the face. Quite early in the disease there is extreme sensitiveness of the skin, so that even brushing it with the hand will bring on severe muscular contractions. One of the most persistent symptoms is a rigid condition of the muscles of the neck, the head being violently thrown back. As a rule, the bowels are constipated. Respiration is slow and labored, and toward the end stertorous. Squinting, with some degree of deafness

and buzzing in the ears, are commonly present. The case may terminate in a few hours, or last many weeks.

Treatment.—There is no specific in this disease. The prime indication is to sustain the vital powers, a hot bath frequently gives relief. When the surface is cold, mustard to the feet, and friction with turpentine and chloroform, have been found useful. Relief has also followed a blister to the neck, preceded by the application of 6 leeches. If a malarial origin is suspected, large doses of quinine, 10 grains every six hours, should be given. Prof. Allen, of Chicago, had much success with the tincture of cantharides. The bowels should be kept open by injections containing croton oil, or turpentine. Bromide of potassium, and the inhalation of chloroform and ether, are sometimes useful, but often fail. During convalescence, fresh air, good diet, and tonics are required. Upon the first suspicion of this somewhat obscure and dangerous affection being present, the most skilled medical aid available should be promptly secured. It is a disease which unprofessional persons cannot with certainty recognize, much less successfully treat.

CEREBRUM. (See BRAIN.)

CEREMENTS, *sere'-ments* [Lat. *cera*, wax], cloths dipped in melted wax, with which dead bodies were enfolded when they were embalmed.

CEREUS BONPLANDII, *se'-re-us*, a species of cactus introduced from Mexico. This is said to exert a wonderful influence in functional and also in organic diseases of the heart. The irregular pulse is readily controlled, as well as palpitation and that feeling of impending danger we so often meet with in angina pectoris and excited action of the heart. It should rank high as a nerve sedative. Dose of the fluid extract, from 1 to 8 drops.

CEREVISIÆ FERMENTI, OR YEAST, *ser-e-vizh'-e-a fer-men'-ti*, is the frothy matter which makes its appearance on the surface of wort, when fermenting, in the process of making beer. It is a light, soft substance, of a greyish color, and readily undergoes the putrefactive fermentation if kept moist, but may be kept for some time if dried. It is composed of vesicles containing granules, which are, indeed, a species of fungus, to which the name of *Torula Cerevisiæ* is given. Yeast is a tonic and antiseptic, but it is chiefly applied in the form of poultices to fetid and sloughing ulcers. Yeast poultice, *Cataplasma Fermenti*, is formed by mixing 6 fluid ounces of beer yeast and a like quantity of water, heated at 100°, and stirring in gradually 14 ounces of wheaten flour. The mass is then placed near the fire till it rises.

CERUMEN, *se-ru'-men* [Lat. *cera*, wax], is the waxy matter of the ear, of which the chief purpose is, probably, the repulsion—by its bitterness and other qualities—of insects which might enter or harbor in the passage.

It sometimes accumulates to so great an extent, especially in the aged, and in the young, particularly after acute diseases, as to cause deafness, more or less complete, which is generally accompanied with noises and other uneasy sensations in the affected organ. The accumulated wax may, possibly, be detected, by examining the ear-passage with the aid of a lighted candle. In order to remove the hardened mass, a small portion of warm olive or almond-oil must be dropped into the ear for two or three nights in succession, for the purpose of softening and loosening the wax; after that has been done, the passage must be thoroughly syringed out with warm water, by means of a two-ounce syringe, till the wax is detached and washed out. Some persons become faint and giddy on having the ears syringed; in such cases let the person lie down, as the operation is best undergone in the horizontal posture. (See EAR, SYRINGE, DEAFNESS.)

CERVICAL, *ser'-ve-kal*, belonging to the neck; as, cervical nerves. cervical muscles, etc.

CERVIX, *ser'-viks*. 1. The neck; properly the back part of the neck. 2. Applied also in two portions of organs, which somewhat resemble a neck, as *cervix uteri*, the neck of the uterus.

CETACEUM, OR SPERMACETI, *se-ta'-she-um*, is a crystalline, purely white, glistening substance, with little taste or odor, obtained from the head of the sperm whale, *Physeter Macrocephalus*. It is found, mixed with oil, in cells, in a peculiar cavity, along the upper jaw of the animal. The oil is separated from the spermaceti by boiling, and the latter is further purified by draining, pressure, fusion, and the action of a weak solution of potash. It is scarcely unctuous to the touch, does not melt under 100°, is insoluble in water, slightly soluble in alcohol, more so in ether, and readily in fixed and volatile oils. It is best purified from any oil it may contain by boiling in alcohol. Spermaceti ointment, *Unguentum Cetacei*, is formed by melting together, with a gentle heat, 5 ounces of spermaceti, 2 ounces of white wax, and 1 pint of almond oil, and stirring constantly while it cools. This is a mild and simple dressing for healing blisters and excoriated surfaces.

CETRARIA, *set-ra'-re-a*, a genus of lichens, which includes the well-known Iceland moss. This lichen, which has been named *C. islandica*, is officinal in the British Pharmacopœia, and is employed both as a nutritious food and as a mild mucilaginous tonic in catarrh and consumption. Combined with cocoa, it forms the article known as Iceland-moss cocoa. Two kinds of starch are found in this lichen—one called lichen starch, and the other inulin; also a peculiar bitter principle, which has been named cetrarin. When used for food only, the plant should be deprived of its bitterness, either by heating it twice in water

to near the boiling point, or by digesting it in a weak alkaline solution, formed by adding $\frac{1}{2}$ an ounce of carbonate of potash to about a gallon of cold water, and afterwards washing it with pure water. The officinal decoction of Iceland moss, *Decoctum Cetrariæ*, is formed by first washing 1 ounce of the moss in cold water, to remove impurities, then boiling it in 1 pint of distilled water for ten minutes in a covered vessel; afterwards strain with gentle pressure while hot, then pour distilled water over the contents of the strainer until the strained product measures 1 pint.

CEVADILLA, OR CEBADILLA. (See ASAGRÆA.)

CEYLON MOSS. (See GRACILLARIA.)

CHAFING, *tshafé'-ing*, a superficial excoriation. It may be remedied by cooling cerates, containing acetate of lead. (See CERATE.)

CHALK, *tshawk* [Lat. *calx*, lime], a variety of limestone, or carbonate of lime, of a soft earthy nature, generally of a yellowish-white color, and sometimes pure white. It often forms strata of great size. It has an earthy fracture, is easily broken, and is rough to the touch. After being burnt into quicklime, chalk is converted into mortar, in which shape it is much used. Perfectly purified chalk, when mixed with vegetable coloring matters, such as turmeric, litmus, and saffron, forms pastil colors. Medicinally, chalk acts as an absorbent, antacid, and mild desiccant. Taken internally it causes constipation, and is hence frequently used to check diarrhœa. From acting on the free acids of the stomach, however, its frequent use is injurious. Care should be taken, after using it for some time, to clear out the bowels, as it tends to accumulate in the intestines. It is also used externally as an absorbent and desiccant to moist excoriations, ulcers, burns, scalds, etc. For medical use it is usually prepared by elutriation, or washing, so as to free it from impurities, and is afterwards dried in small masses, usually of a conical form. This is prepared chalk, *creta preparata*, a white amorphous powder, effervescing with acids, and dissolving with only a slight residue in diluted hydrochloric acid. Dose, 10 to 60 grains. Chalk mixture, a very common form in which it is given to check diarrhœa arising from acidity, is formed by triturating $\frac{1}{4}$ ounce each of prepared chalk and gum acacia, in powder, with $7\frac{1}{2}$ fluid ounces of cinnamon water, and afterwards adding $\frac{1}{2}$ fluid ounce of syrup. Dose, 1 to 2 fluid ounces every three or four hours. The aromatic powder of chalk contains powdered cinnamon, nutmeg, saffron, cloves, cardamom seeds, and refined sugar, and is an excellent antacid stimulant and cordial. Dose, 10 to 60 grains. The aromatic powder of chalk and opium contains $\frac{1}{4}$ ounce of opium to $9\frac{3}{4}$ ounces of the above, and is given in doses of 10 to 40 grains. *Hydrargyrum cum creta*, or mercury and

chalk, is formed by rubbing together 1 ounce of mercury and 2 ounces of prepared chalk in a porcelain mortar, until the metallic globules cease to be visible, and the mixture acquires a uniform gray color. Dose, 3 to 8 grains.

CHALK-STONE, *tshawk'-stone*, is the concretion deposited around and in the joints of those who suffer from chronic gout. It consists of the lithic acid and soda, which form a comparatively insoluble salt. The liability to the formation of chalk-stone is a reason why those who are subject to gout should, when an antacid is required, make use of potash, which, in union with lithic acid, forms a much more soluble salt than soda does. (See GOUT, URINE.)

CHALYBEATE SPRINGS, *ka-lib'-e-at*, natural waters, containing iron in solution. For an account of the most famous chalybeate waters, see MINERAL WATERS.

CHAMBER, SICK. (See SICK-ROOM; BED, BED-ROOM.)

CHAMOIS LEATHER, OR SHAMMY UNDERCLOTHES. (See CLOTHING.)

CHAMOMILE. (See ANTHEMIS.)

CHAMPAGNE WINE, *sham-pane'*, is produced from the grapes grown in Champagne, an old province of France. This wine is divided into two classes—white and red champagne. The former is made either sparkling or still. Sparkling champagne (*mousseux*) is produced by treating the wine in a particular manner during fermentation. The wine is racked off in December, and after being fined with isinglass, is bottled and securely corked. Carbonic acid is generated in the wine on account of the incomplete nature of the fermentation, and its effervescing qualities depend upon the quantity of that gas dissolved by the fluid. After the sediment which is deposited has been removed, a liquor, composed of a solution of sugar-candy in cognac, is added, and each bottle is tightly re-corked. Still champagne is first racked off in the March after the vintage. On account of the profitable nature of the manufacture and the popularity of champagne wine, it is much adulterated with the juice of pears, gooseberries, etc. Very little of the wine sold as champagne in Paris is really genuine. It generally consists of some cheap, light wine, charged with carbonic acid gas. Champagne contains only about twelve per cent. of alcohol, a much less proportion than port, sherry, and other strong wines. Its powerful intoxicating effects are due to its effervescence. It is the most speedily exhilarating of all wines, but its effects soon pass off, when not taken in excess. Within the last ten years, this wine has come into much more general use, owing to the reduction in price. In diseases of exhaustion, more especially in the extreme debility of fever, when the stomach is irritable, few medicines

are equal to champagne frequently given, in quantities of from $\frac{1}{2}$ to 1 wine-glassful. In many cases of even temporary nervous exhaustion it is a valuable restorative. To persons subject to gout, or calcareous formations, champagne is considered injurious.

CHANCRES, *shangk'-urz*, are small ulcers, the result of inoculation with the venereal poison. They commence in the form of small pustules, which, after breaking, degenerate into yellowish, grey-looking sores, around which the skin feels firm or hard. Thorough destruction of the chancre in the first instance, by means of nitrate of silver, lunar caustic, is the only safe measure. When the disease has advanced beyond the incipient stage, or indeed in any stage, it cannot be a subject for domestic treatment, and ought more especially, on account of the lamentable results which may ensue should the constitution become affected, to be without delay intrusted to proper medical care.

CHANGE OF LIFE. (See MENSTRUATION.)

CHANGE OF TYPE, *tshanje tipe*. The change of the type of disease is perhaps the question of all others which at the present time is most angrily discussed in the ranks of the medical profession, names of the highest eminence being ranged on both sides of the disputants. The question is this: Is disease, as observed now, the same as disease observed forty years ago, and if so, how are we to account for the great change in practice, which may be best, illustrated by the fact that now there is almost an entire disuse of bleeding instead of its nearly constant employment? or, on the other hand, has the type of disease changed, and are our inflammations of a different character than formerly, and can this different character be proved by the result of an examination of inflamed parts after death, as contrasted with those formerly examined? It will readily be understood how very few medical men are in a position to give an opinion upon a subject which requires so much experience and so much extended observation to settle it. Here, as in most similar questions, both parties are probably right to a certain extent; that is to say, our diseases at present, as a rule, are not of the severe, or, in medical language, sthenic type which marked them fifty years ago, owing, doubtless, to the influence of many external circumstances, while it must also be admitted that a closer, a more accurate, and a more advanced observation of the phenomena of disease, has satisfied the minds of medical men that the severe bleedings of many of the more ignorant of the routine practitioners of days gone by were unnecessary and even hurtful. It is well known that there were many in the times alluded to who looked with great distrust and apprehension upon the indiscriminate blood-lettings of their brethren who ruthlessly ordered poor dying men and women to lose 50 or 60 ounces of blood, because they were feverish!

In short, were one to sum up all that has been said upon this subject, it would amount in substance very much to this—that whether the type of the disease has changed or not, the bleeding system was carried to a most enormous excess; that the type has probably not changed quite so much as those of the old school would have us believe, and that at the present time there is not a little danger of the non-bleeding system being overdone by those who treat diseases according to the theories advanced by others, and not upon the merits of each individual case. (See BLEEDING, OR BLOOD-LETTING.)

CHAPPED HANDS. (See CHAPS.)

CHAPPED LIPS. (See CHAPS.)

CHAPPED NIPPLES. (See NIPPLES.)

CHAPS, *tshaps*, are cracks of the skin, generally occurring on the hands or lips, and occasioned by undue exposure to extremes of heat and cold, more particularly in persons whose circulation is naturally weak. The part is swollen and inflamed, and attended with heat, pain, and itching. They are to be treated with cold cream, spermaceti, or lard. The best preventive of chaps is to occasionally rub the parts with glycerine, or a solution of glycerine and water. Chapped hands, so troublesome to many in frosty weather and during cold winds, may partly be avoided by care in thoroughly drying the skin after washing. The following prescriptions will be found useful:

Take of Borax.....	Two scruples.
Glycerine.....	Half an ounce.
Water	Seven and a half ounces.— <i>Mix.</i>

This may be used twice a day.

Take of Lead solution.....	One dram.
Oxide of zinc	One dram.
Glycerine	One dram.
Pure lard.....	Two ounces.— <i>Mix.</i>

Rub well together and apply to the hands every night. Or,

Take of Benzoate of zinc.....	One dram.
Oil of almonds... ..	One dram.
Cold cream.....	One ounce.— <i>Mix.</i>

To be applied to the hands every night. Or,

Take of Oxide of zinc.....	One dram.
Carron oil	Half an ounce.
Simple ointment.....	Half an ounce.— <i>Mix.</i>

Glycerine, either alone or with a small quantity of sugar of lead added to it, is very useful, and ought to be applied to the hands of those who suffer much in this way, after each time they are washed.

Those who are obliged, from the nature of their occupation, to wash

their hands frequently, are the great sufferers from chaps, the chaps or cracks themselves becoming dangerous, in some occupations, from their liability to absorb poisonous substances into the blood. For the treatment of chapped hands, M. Testelin recommends the application of honey heated in an oven, and deprived of its viscosity by the removal of the froth formed under the influence of heat. It should be applied over the hands whenever they are washed, and spread with gentle friction. The above-mentioned author asserts that he has thus succeeded in curing chaps, and in preventing their return, in servant-maids whose hands are frequently exposed to the contact of water, and who usually suffered from this inconvenient affection throughout the winter. He prescribed the same remedy with entire success in Brussels to a clear-starcher, although this person did not for a single day discontinue her employment.

CHARCOAL. (See CARBON.)

CHARLATAN, *shär'-lq-tan* [Ital. *ciarlare*, to talk much], a pretender; a quack. Hence *charlatanry*.

CHEERFULNESS, EFFECT OF, ON HEALTH. (See HEALTH, PASSIONS.)

CHEESE, *tsheez* [Sax. *cese*, or *cyse*], is the curd of milk, salted, pressed and dried. Milk is composed of three parts—the oily or fatty portion, commonly known as cream, and which separates on standing, being lighter than the rest, and the curd and whey, the former remaining dissolved in the latter until coagulated by some acid. In the manufacture of cheese, the acid is supplied by the rennet, which, being the dried stomach of the calf, contains a large amount of gastric juice, and appears to be the natural milk-curdle. It is prepared by salting and drying the inner membrane of the stomach of a sucking-calf. When required for use, a piece is soaked for some hours in water or whey, and the whole is added to the warm milk that is to be curdled. When the curd has coagulated, it is separated from the whey by straining, and pressed in a ring or hoop. The variety of color and flavor in cheeses results from difference of pressure, length of time in keeping, varying proportion of salt, and many other circumstances. Annatto is sometimes added to the milk to give color to cheese. Cheese forms a strong and nourishing food for those that can digest it, but it is only adapted to those who are of robust constitutions, and who take much exercise. It is very improper for persons of weak digestion, or of sedentary habits. It tends to produce costiveness, and in no case should it form the principal part of a meal. In small quantity, however, and when well masticated, and eaten with a due proportion of bread, cheese is nutritious and stimulating to the digestive powers. (See FOOD.)

CHELIDONIUM, *kel-e-do'-ne-um* [from Gr. *chelidon*, a swallow, the

plant being said to flower at the coming, and dry up at the departure of the swallow], the celandine, a genus of plants belonging to the Nat. order *Papaveraceæ*. The species *C. majus* is found in waste places and on old walls in this country, and may be recognized by its small yellow flowers, and the orange-colored juice which exudes from its stem when plucked. This juice is poisonous, and is a popular application for the cure of warts. It has been used with success in the treatment of opacities of the cornea. It yields chelidonic acid. Celandine is stimulating, aperient, diuretic, and sudorific; it is used in liver affections, and is supposed to exert a special influence on the spleen. Applied in the form of a wash or poultice in scrofulous and cutaneous diseases and piles; also to indolent ulcers, fungous growths, etc. As a drastic hydragogue, it is fully equal to gamboge. Dose: of fluid extract, 10 to 20 drops; of solid extract, 5 to 10 grains.

CHELONE GLABRA, *ke-lo'-ne gla'-brā*, balmony, a perennial herbaceous plant, belonging to the Nat. order *Scrophulariaceæ*. It is sometimes called snake-head, turtle-bloom, turtle-head, salt-rheum weed, etc. It is found in the United States, in damp soils. It yields an active principle called Chelonin. Especially valuable in jaundice and diseases of the liver; likewise for the removal of worms. Used as a tonic, in small doses, in dyspepsia, debility of the digestive organs, and during convalescence from febrile and inflammatory diseases. As a tonic, its influence seems to be expended principally upon the digestive apparatus, increasing the appetite, promoting digestion and assimilation, improving the condition of the blood, in both volume and quality. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 1 to 2 teaspoonfuls; of Chelonin (active principle), 1 to 2 grains; of the powder, 1 dram; of the decoction, 1 to 2 fluid ounces. (See DECOCTION.)

CHEMICAL ATTRACTION. (See AFFINITY.)

CHEMICAL FOOD. (See PHOSPHATES.)

CHEMICAL NOMENCLATURE. (See CHEMISTRY.)

CHEMISTRY, *kem'-is-tre* [Arab. *kimia*, the occult science; Fr. *chimie*, Ital. *chimica*], "has for its object the study of the nature and properties of all the materials which enter into the composition or structure of the earth, the sea, and the air, and of the various organized or living beings which inhabit these latter." (Fownes.)

History.—The empirical mixing of two substances, possessing different properties, to form a third, differing from either, must have commenced with the first peopling of the earth. The fact was transmitted to others, who improved on it, and experimented on other similar bodies; and thus was a mass of practical information obtained, which gradually developed into chemical manufactures. The origin of chemistry is

generally traced to Tubal Cain, the father of workers in metal, between whom and Hermes Trismegistus lies a period of obscurity of which we know nothing. Hermes is said to have been the inventor of alchemy, a notion not entitled to much credit. In any case, Egypt, which is said to have been colonized by his son Mizraim, was the foremost chemical nation of the East; their glass, pottery, colors, and method of embalming their dead, bearing strong testimony to the fact of their having brought the art to a great state of perfection. The practical preceded the theoretical; but by degrees, as men began to think, they began also to observe and theorize. They saw that a gross earthly matter, such as iron ore, became transmuted, as it were, by fire into a hard metallic substance, like iron. What more rational, then, for them to suppose than that gold could be formed in a similar way? The change of earth into metal was to them more wonderful in theory than the change of lead into gold. Thus began alchemy—that specious monster which enticed within its grasp legions of philosophers, to whom it gave stones for bread, but whose labors have not been without their effect in the subsequent progress of the science. The origin of alchemy is lost in obscurity. Philology, however, comes to our aid, and points out to us that common chemical words, such as alcohol, alkali, aludel, and others, have an Arabian origin, which plainly indicates that the Arabians, although perhaps not the inventors of the Black Art, were at any rate its most ardent votaries. Gradually another notion stole in. The principles and practice of pharmacy became more general, and a specious logic was brought to bear on the fact that certain salts and liquors of a metallic nature assuaged pain and restored drooping vitality. It was then but one step further to go to find a compound that would prolong life indefinitely. Another object of pursuit was the universal solvent, or alkahest. The first practisers of alchemy were, no doubt, honest, serious men; but as time wore on there arose a mass of impostors who found ready dupes in avaricious people, who were ever ready to buy the secret of unbounded riches. In this way there was formed a mass of almost unintelligible knowledge, carefully concealed from the vulgar by secret symbols and an absurd nomenclature. Through this accumulation of rubbish there ran some golden veins; and we must never forget that, although alchemy had its philosopher's stone and universal solvent, it also gave us a hundred salts and preparations daily used in our own laboratories.

Towards the end of the fifteenth century arose a set of men whose brains were made in a better mould than those of their predecessors. Putting aside the idea of transmutation of metals, they turned their attention to the discovery of the principles that governed the formation and composition of bodies already in their hands, rather than to the pur-

suit of chemical chimeras. Paracelsus, though imbued with the fanciful doctrines of astrology and demonology, must always be regarded with reverence for his virtues and pity for his faults. He must ever be considered as the connecting link between the alchemists and chemists. A few of his researches will be sufficient to show that, although full of the maddest hallucinations, he was one of those rare geniuses who have the power of lifting a science from the mire. He was the first to offer a true chemical explanation of the action of mercury, iron, and lead in the human system. He distinguished alum from copperas, showing that the former contained an earth, the latter a metal. He admitted the existence of other elastic fluids besides air. He was aware that animals could not live, and inflammable matters could not burn, without air. To him succeeded Van Helmont, who was the first to distinguish between aerial fluids, or gases, as he called them. After Van Helmont came Boyle, the founder of the Royal Society, one of the most acute experimentalists that ever lived. His numerous experiments are marvels of accuracy, bearing even the test of our present knowledge. He and his contemporary Hook made great improvements in the air-pump, the invention of Otto Guericke, and paved the way to further discoveries. At the beginning of the eighteenth century come the names and discoveries of Becher and Stahl, the founders of the phlogistic theory. They found that by heating charcoal with metallic oxides or calces, they were reduced to a metallic state. They further noticed, that when charcoal was burnt it was entirely dissipated. Upon these facts they founded the theory that charcoal, or phlogiston, was a principle which united with the calx to form the metal. This notion appeared to be further borne out by the fact that metals, when heated, are converted into calces; the explanation of which was, that the volatilized charcoal, or phlogiston, was consumed by the heat. This theory, which was the first general principle applied to the whole range of chemical phenomena, maintained its ground for some time, until the discoveries of Priestley tended to overthrow it, by proving that the calx, or oxide, of mercury, instead of gaining something by being heated, lost something, and that that something was oxygen. About this time Cavendish discovered hydrogen, and Rutherford nitrogen—experiment being heaped upon experiment, and discovery on discovery, until the Stahlian theory gave way. It was succeeded by that of Lavoisier, the father of modern chemical science, who classified and arranged the known chemical facts into a system unparalleled for its precision, extent of view, and logical accuracy. His discoveries were few, but he reasoned on the discoveries of others with wonderful astuteness. From this moment chemistry marched onward with giant strides.

It would be impossible to enumerate the whole of the discoveries that have taken place since the commencement of the present century; a few will suffice to show how wonderfully this science has progressed even in our own time. The application of the voltaic current to the decomposition of the alkalies, by Davy, resulted in the discovery of a dozen or more new metals. The atomic theory of Dalton threw great light upon the composition of salts and acids. The invention of the present symbolic notation by Berzelius, and the determination of the elementary equivalents, soon followed. In 1811, Davy overthrew the notion of Lavoisier, that acids could not exist without oxygen, by proving that hydrochloric acid consisted only of chlorine and hydrogen. In 1812, Courtois discovered iodine; Balard followed some time after with bromine. Element succeeded element until they reached the number of sixty. All this time organic chemistry was making great progress. The vegetable alkaloids began to attract great attention; their analyses were made, and new theories founded on them. The early laborers, Liebig and Berzelius, threw great light on this branch of the science, which is even to this day the most attractive to many famous chemists. The development of the theory of organic radicles has gone on increasing, fostered by the labors of Faraday, Laurent, Gerhardt, Hofmann, and a host of others, until it has assumed a mathematical precision unknown to any other branch of physical science. The investigations of organic compounds by these philosophers have resulted in a complete change, both in the notation and nomenclature of mineral substances. This theory, which was founded by Gerhardt, and has received his name, will be afterwards explained. The last great discovery has been spectrum analysis, which has resulted in the addition of three new elements to our already bulky list, *cæsium* and *rubidium*, by Messrs. Bunsen and Kirchhoff, of Heidelberg, and *thallium*, by Mr. Crookes, a distinguished English analytical chemist. The researches of Graham upon the diffusion of salts in solution and in dialysis, or the separation of crystallizable and non-crystallizable substances in solution by means of an intervening diaphragm, are amongst the most brilliant discoveries of the age. The researches of Schonbein, Schroetter, Brodie, and others, on the allotropic states of bodies, seem to point to the compound character of the present elementary bodies. In fact, chemistry at the present day is making such enormous strides that it can only be properly studied in the current scientific journals.

Principles.—"It is the province of chemistry," says Professor Miller, "to ascertain the nature of the different substances of which the universe is composed; to trace their mutual reactions on each other; to effect new combinations of these components with each other; and to

define the conditions on which the combinations existing around us are producible." Material substances are endowed with two different kinds of properties, *physical* and *chemical*—the study of the former belonging to natural philosophy, of the latter to chemistry. The physical properties of an object are those which refer to its condition, whether solid, liquid, or gaseous; the chemical are such as relate essentially to its action upon other bodies, and to the permanent changes which it either experiences in itself, or which it effects upon them. Chemical action occurs when two or more substances so act upon each other as to produce a third substance, differing altogether from the original ones in properties; or when one substance is brought under such conditions that it forms two or more bodies differing in properties from the original one. All substances are either *simple* or *compound*. The simple substances, or elements, so far as known, are 63 in number; and of combinations of these, all the compound substances are made up. All substances, whether simple or compound, are believed to be made up of small indivisible particles, called *atoms*. These can be united with one another, or separated from each other, but in no case can any one of them be broken up or divided into smaller particles; and hence the name [Gr. *atomos*, indivisible.] What the real size, form, or weight of these particles may be, we have no means of determining. The relative weight, however, of the atoms of the different elementary bodies to each other, is fixed; and those of hydrogen being lighter than those of any of the other elements, it is taken as the standard. The *atomic weight* then of any of the elements, is the relative weight of its atoms to those of hydrogen. *Chemical attraction* or *affinity* (see AFFINITY) is the force which is exerted between the particles of different kinds of matter, causing them to combine, so as to form a new matter, with properties peculiar to itself, and different from those of its constituents. Chemical combinations do not take place indifferently, but in accordance with certain strict rules, or laws. Each particular chemical compound is always constituted of the same elements, combined together in the same proportion. It frequently happens, however, that two elementary bodies unite together in more than one proportion, and so form different compounds, but these are still formed on a uniform plan, and the proportions of the elements are in each case related. One substance will unite with another in preference to a third, or, in some cases, in preference to any other. This preference is denoted by the term *elective affinity*. By means of this elective action, some combinations may be decomposed. When one element can take the place of another element in a compound, so as to form one analogous, it is said to be *equivalent*. Thus, 100 parts, by weight, of mercury, 80 of bromine, 39 of potassium,

23 of sodium, are respectively exchangeable for, or equivalent in combination to, one part of hydrogen. The relative quantity of hydrogen which can enter into chemical combination being less than that of any other element, its combining proportion is taken as the standard of comparison or unity. The composition of a body may be determined either *analytically* or *synthetically*. By analysis a body is separated into its constituent elements, so as to determine their nature or quality, or their quantity. The former is called *qualitative*, the latter *quantitative*, analysis. By synthesis, different elements are combined, in order to form compounds. That branch of chemistry which treats of the nature and properties of elements and compounds of mineral origin, is called *inorganic*; and that which deals with those of bodies of an animal or vegetable nature, or the products of such, is called *organic chemistry*. Recent discoveries, however, have rendered the distinction between these two less and less marked, so that it is impossible to define their exact limits. There is, in fact, no definite line of demarcation between inorganic and organic products. Carbon being the characteristic element in all organic bodies, some define organic chemistry as the chemistry of carbon, or of the carbon compounds. (See CARBON.)

Formulæ.—The alchemists, for the sake of mystery, employed the signs of the different planets to represent the various metals. Modern chemists, for the sake of convenience and brevity, have given to every element one or two letters called symbols, which are used, in conjunction with figures and algebraic signs, to express every known compound. The principle upon which modern chemical notation is founded, is that each symbol indicates one or more atoms of the element it represents: thus, C, C₂, C₂₇, indicate respectively one, two, and twenty-seven atoms of carbon. Two symbols, placed side by side, signify that they are in close chemical union: thus, AgO signifies a compound containing an atom of silver united to an atom of oxygen. A comma, separating two or more groups of symbols, must be taken to mean that they are not in such intimate chemical union that the groups cannot be separated without decomposition: thus, AgO, NO₅, represents nitrate of silver, which, by certain treatment, can be separated into AgO, oxide of silver, and NO₅, nitric acid. The sign *plus* + signifies that the union is still weaker: thus, AgO, NO₅+HO means nitrate of silver united to an atom of water, HO. A number placed on the left of a group of symbols signifies that the whole group, as far as the next comma or *plus*, is to be multiplied by it: thus, KO,2CrO₃ signifies that one equivalent of potash is united with two of chromic acid. Sometimes the group to be multiplied is enclosed in a parenthesis: 3(HgCy)+2(KO,SO₃) means that three equivalents of cyanide of mercury are united to two of sulphate

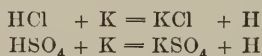
of potash. Formulæ may be *empirical* or *rational*,—the former giving merely the constituents of a compound, the latter indicating the manner in which they are grouped. It is evident, therefore, that a compound can only have one empirical formula, while its rational formulæ are as numerous as the theories of its composition. Alcohol, for instance, is represented empirically by the formula $C_4H_6O_2$. Rationally, it may be represented as the ethylate of water, HO, C_4H_5O ; the hydrated oxide of ethyl, C_4H_5O, HO ; as a compound of olefiant gas and two equivalents of water, $2HO, C_4H_4$, and so on, *ad infinitum*. Brackets are used to denote substitution compounds; that is, compounds in which one element, or group of elements, has been substituted for another without materially affecting the character of the compound. Two changes have been lately introduced into chemical formulæ that it will be well to notice;—one in which dashes are used to denote the atomic power of the element; the other, a line through a symbol, to signify that its atomic number has been doubled. Bi''' means that bismuth has a triatomic power in the way of forming substitution compounds. This notation originated with M. Gerhardt, an eminent French chemist, whose views on the subject are daily gaining ground, and at no distant day will be generally adopted.

Gerhardt's Notation differs from that in common use by the doubling of certain equivalent numbers. In looking through a series of equivalents, side by side with the specific gravities of the elements to which they belong, it will be seen that there is a discrepancy between the specific gravities and the equivalents of some few bodies. This will be plain from the following examples:

	<i>Equiv.</i>	<i>Spec. Grav.</i>
Hydrogen.....	1	1
Oxygen.....	8	15.9
Sulphur.....	16	31.7 (vapor).
Chlorine.....	35.5	34.9
Bromine.....	80	79.8

To remove this anomaly, M. Gerhardt doubles the equivalent numbers of oxygen, sulphur, carbon, selenium, and tellurium, on the assumption that *equal volumes of elementary gases and vapors contain the same number of atoms when compared under similar conditions of heat and pressure*; which is equivalent to saying that an atom of oxygen weighs sixteen times as much as an atom of hydrogen, because a cubic foot of the former gas weighs sixteen times as heavy as a cubic foot of the latter. According to this new system, therefore, the equivalents of oxygen, carbon, sulphur, selenium, and tellurium are doubled; and in most chemical books these doubled equivalents are indicated by a line drawn through the letters. Besides the changes in the equivalents,

Gerhardt revived and fully carried out a theory of the constitution of acids and salts, first propounded by Sir Humphrey Davy. According to the present theory, as first started by Lavoisier, Berzelius, and others, nitrate of silver would be formulated thus: AgO, NO_5 ; being looked on as a compound of nitric acid and oxide of silver; but on comparing this salt with its corresponding haloid, chloride of silver, a discrepancy occurs, which vanishes, if we consider nitric acid, as existing in nitrate of silver, to consist of NO_6 instead of NO_5 . From numerous other anomalies, occurring chiefly in organic bodies, Gerhardt came to the following conclusion: 1. That every uncombined acid necessarily contained one or more equivalents of hydrogen. 2. That the bodies hitherto regarded as dry acids possessed no acid properties until united with hydrogen and oxygen. 3. That salts were formed by the substitution of one or more atoms of hydrogen, by one or more atoms of a metal, or some substance acting as such. Thus, the bodies known as NO_5 , SO_3 , and CO_2 , are neutral and inert, until united with an equivalent of water, when they form respectively nitric, sulphuric, and carbonic acids. This brings the haloid and oxyacid salts into perfect harmony, both being regarded as acids in which the hydrogen is replaced by a metal:



Or, in other words, the acid is regarded as the nitrate, sulphate, or carbonate of hydrogen, and the salt formed, as the nitrate, sulphate, or carbonate of the metal. Hence the terms nitrate of potassium, sulphate of sodium, and carbonate of ammonium, are used by Gerhardt's followers, instead of those in ordinary use. Gerhardt also originated the system of arranging compounds according to types, and fully worked out the theory of the formation of all bodies by the substitution of one element, or group of elements, by others of a similar character.

Nomenclature.—The present system of chemical nomenclature is due to Lavoisier, and is based on the principle that the name of a compound should, as far as possible, express its composition and properties. The names of many of the simple elements we have received from the alchemists, and were formed on no definite plan. Those elements which have been lately discovered have been named either from some characteristic property possessed by them, or from some word indicating their source. Metals, as a rule, terminate in *ium*, as *potassium*, *thallium*, etc.; metalloids in *on*, as *boron*, *silicon*, etc.; gases in *ine* or *gen*, such as *chlorine* and *oxygen*. In several instances, theory grounded on insufficient facts has been allowed to influence the name of an element; for example, oxygen was named from *oxus*, acid, and *gennao*, to generate;

the Lavoisierian theory being that no acid could exist without oxygen. Subsequently, however, it was found that oxygen occurred in all bases, and that many acids existed that contained hydrogen in its stead. The Lavoisierian nomenclature is founded on the fact that when a compound of two elements is submitted to the action of the voltaic current, these elements separate, one (the electro-positive body) being attracted by the negative pole, and the other (electro-negative body) going to the positive pole. As a rule, it was found that the metalloids were electro-negative, and the metals electro-positive. The simplest combinations of two elements are termed binary compounds, and fall naturally into two divisions, —bases and acids. Bases always end in *ide*, and are compounds of different proportions of a metal with a metalloid. The proportion of the metalloid is indicated by the addition of a Greek or Latin numerical particle: thus we have the *protoxide*, *sesquioxide*, *binoxide*, and *teroxide* of various metals, indicating that these compounds contain 1, $1\frac{1}{2}$, 2, and 3 doses of oxygen to 1 of metal. When the metal is in excess, Greek prefixes are used: we have, for instance, the *dinoxide* or *trioxide* of a metal, showing that the metal is in a double or triple dose. Generally, the prefixes *sub* and *per* are used to indicate the excess of metal over metalloid, and *vice versa*. The termination *uret* was formerly used in several cases, such as *sulphuret*, *phosphuret*, etc.; but it is now abandoned in favor of the termination *ide*. The compounds of the metalloids with each other are named on the same principle. When the dose of oxygen is large, the compound is generally possessed of acid properties; thus we have Cr_2O_3 , the sesquioxide of chromium, which is a base; but, by increasing the oxygen, we obtain CrO_3 , which is an acid capable of forming salts with bases. The amount of oxygen contained in oxyacids is indicated by the termination *ic* or *ous*, or the prefixes *hypo*, under, or *hyper*, above. The compounds of acids with bases are always indicated by the termination or prefix of the word giving the name of the acid. Acids ending in *ous* and *ic* form salts ending in *ite* and *ate*, the prefix being, of course, preserved. When the oxide with which the acid is united is a protoxide or peroxide, the prefixes *proto* and *per* are added; for instance, the pernitrates and protonitrates are the nitrates of the protoxide and peroxide of the metal. When the dose of acid is greater or less than the base, the prefixes *sub*, *bi*, *sesqui*, are used; as the *subcarbonate*, *bicarbonate*, and *sesquicarbonate of soda*. In double salts the name of the base only is repeated; as the *tartrate of potash and soda*. There are a few instances of acids and salts which have the same composition, but different properties. They are distinguished from the ordinary kind by the prefix *meta*; thus we have *phosphoric acid* and *metaphosphoric acid*. The prefix *pyro* signifies that the acid or salt has

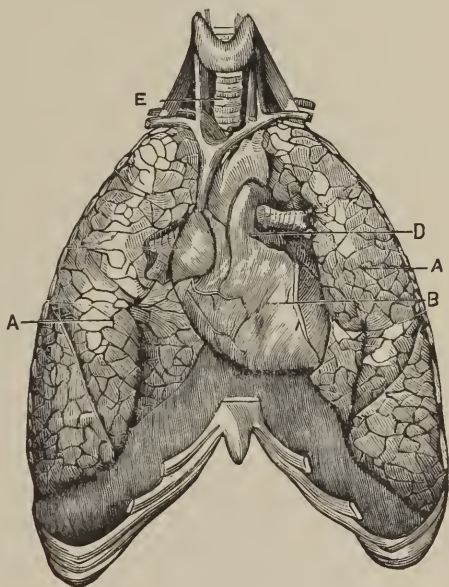
been obtained by heat; for instance we have pyrogallic acid produced in this way from gallic acid. In organic chemistry the nomenclature is in many cases somewhat confused. This is not owing to any want of proper principle in the formation of new words, but rather to the differences of opinion existing amongst chemists as to the composition of the substances indicated. Thus, aniline is called *phenylamine*, *phenylia*, and *benzidam*, by different chemists, who each have a theory touching its composition. Organic chemistry may be defined as the chemistry of organic radicals or compounds containing carbon, which act in every way as elements. Organic radicals generally terminate in *yl*, and mostly contain carbon, hydrogen, and oxygen. Thus we have *ethyl*, the radical of ether, which forms oxides and salts in the same manner as iron, lead, or any of the purely elementary bodies. There are also compounds corresponding to the electro-negative bodies *oxygen*, *hydrogen*, *nitrogen*, etc. We have, for instance, *cyanogen* and *amidogen*, which form *cyanides* and *amides*, similar in their properties to *chlorides* and *oxides*. The termination *ol* or *ole* is generally applied to neutral compounds of carbon and hydrogen, possessed of neither basic nor acid properties, and are mostly liquids; such as *benzol*, *pyrol*, *quinol*. The termination *in* is applied to other neutral substances, generally solid; such as *paraffin*, *naphthalin*, and *albumin*. Those ending in *ine* or *ia* are generally bodies allied to the alkalies in their properties. We have, for instance, *quinine* or *quinia*, *strychnine* or *strychnia*, *aniline*, etc., which form salts with acids. Many of those which end in *amine* resemble ammonia, and are considered substitution compounds of that body, in which one or more equivalents of hydrogen are replaced by an organic radical. If two or three equivalents are replaced, the prefix *di* or *tri* is added to the word; for instance, we have *dimethylamine* and *tripropylamine*, the composition of which is plainly indicated by their names. When the hydrogen is replaced by different bodies, their names are prefixed. We have, for instance, *ethyl-methyl-amylamine*, which consists of one equivalent of nitrogen united to one each of the organic radicals ethyl, methyl, and amyl. There are also substitution acids as well as bases; such as *bromobenzoic acid* and *chloroacetic acid*, in which *bromine* and *chlorine* are substituted for an equivalent of hydrogen. Thus, although these names appear unintelligible and unwieldy to the superficial observer, they are as easily understood by the chemical student as any term including several nouns and adjectives would be to an ordinary individual.

CHENOPODIUM ANTHELMINTICUM, *ken-o-po'-de-um ant-hel-min'-te-kum*, or Wormseed. A perennial plant belonging to the Nat. order *Chenopodiaceæ*. It is found growing in almost all parts of the United States, and is commonly known as Jerusalem oak. The seeds are the

part used in medicine, and owe their activity to an essential oil, which may be obtained by expression. It is one of our most valuable anthelmintics, and is used in various forms to expel round worms from children. A dose of it is usually given before breakfast in the morning, and at bedtime in the evening, for three or four days successively, and then followed by some brisk cathartic. Dose of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, a wine-glassful; of the oil, from 2 to 8 drops on sugar. (See INFUSION.)

CHERRY AND CHERRY LAUREL. (See CERASUS.)

CHEST, *tshest*, or, in medical language, the thorax, is the important cavity situated between the neck and the abdomen—which contains the heart and large blood-vessels and the lungs. It is separated from the abdomen by the diaphragm, it is bounded by the breast-bone anteriorly, laterally by the ribs, and is supported posteriorly by the spine. It is singular how much ignorance there is among the uneducated regarding the situation of what is called the chest; generally it is referred to the pit of the stomach; and what is called “a pain in the chest,” is in many instances, a pain in the former situation. In ordering applications, leeches, blisters, and such like to the chest among the uneducated, it is absolutely requisite to indicate with the finger the exact spot on which they are to be placed, otherwise the chances are, that if simply the chest is named, the pit of the stomach will be understood; a serious mistake in many of the acute affections of the chest, particularly in children.



ORGANS OF THE CHEST.

- | | |
|-----------|----------------------|
| A, Lungs. | D, Pulmonary Artery. |
| B, Heart. | E, Trachea. |

The form of the chest itself is, or ought to be, that of a truncated cone, broad below, narrow above. It is true it appears the reverse of this, even naturally, and is made to do so still more by the absurd ideas about small waists; but the greater apparent width at the upper part of the chest in the living person is due to the shoulders and arms, when these are removed, the contrary is seen to be the case, and the cavity

itself is evidently much more capacious in its lower than in its upper part. The principal contents of the chest are the lungs—and the heart—with the large vessels immediately connected with it.

When by tightly-laced corsets, or other contrivances, the lower part of the chest is compressed, the contained viscera must find room somewhere; the diaphragm yields more readily than the long ribs, and is pressed down upon the liver, stomach, and bowels, disordering their functions, and laying the foundation of disease, whilst at the same time the free play of both lungs and heart are impeded. In other words, the possessor of that most desirable physical conformation, a capacious chest, is doing all that is possible to render it otherwise; or should the cavity be naturally small, to make it still more deficient in size, by artificial restraint, instead of every means being used to augment its capacity. A small chest always gives a greater liability to disease; all tendency therefore to contraction, stooping of the shoulders, etc., ought most sedulously to be watched and attended to, particularly in young people, whilst the bones are still soft and yielding; disease may be either the cause or the consequence; the spine too should be well examined. Exercises, which from moderate exertion call for full expansion of the chest by respiration, and full play of the arms, are generally useful. The elastic "chest expander," made of vulcanized India rubber, is a most excellent contrivance for the purpose. Some trades, particularly that of shoe-making, tend in the course of time to affect the conformation of the cavity of the chest.

The physical examination of the chest as regards measurement, the sounds elicited by tapping upon it in various ways with the fingers, and heard by the application of the ear, either directly, or mediately by means of the stethoscope, are most important aids in the investigation of disease, and should never be omitted or objected to. (See HEART, LUNGS, RESPIRATION, AUSCULTATION, STETHOSCOPE.)

CHEST EXPANDER. (See CHEST.)

CHESTNUT, *tshes'-nut*. Chestnut is the fruit of the *Castanea vulgaris*; it is nutritious, contains much starch, and no oil, like many others of the nut tribe. It is certainly indigestible from its firm and coherent substance, but is rendered much more unwholesome by being converted into flour, in which state it is largely used in Europe. Roasted chestnuts are more wholesome than raw, but are not fit for weak stomachs.

CHEST, WATER IN THE. (See DROPSY.)

CHICKEN. (See POULTRY.)

CHICKEN-POX, *tshik'-in poks*, is a mild eruptive disease which spreads by infection, and chiefly attacks children, occurring once during

life. It is preceded in most, but not in all cases, by slight feverishness, for one or two days. The eruption first appears in the form of conical pimples with a white head, on the breast, shoulders and neck, more sparingly on the face, and on the body generally. On the second day, the vesicles appear like little globular blisters, but with very slight surrounding inflammation; on the third and fourth days, the fluid they contain becomes opaque or whey-like. They now either break or shrivel up, forming thin puckered crusts, which fall off piecemeal in one or two days more, seven or eight days being the whole time occupied by the course of the disorder. Little or no treatment is required beyond a gentle aperient repeated once or twice, and care taken that the child does not irritate by scratching.

Chicken-pox might be mistaken for modified small-pox by the inexperienced; it is distinguished by the absence or extreme mildness of premonitory fever, and by the rapid development, course, and different form of the vesicles, particularly in the absence of the central depression, which characterizes the true small-pox vesicle.

CHICK-PEAS. (See CICER.)

CHICKWEED. (See STELLARIA MEDIA.)

CHICORY, *tshik'-ore*, the *Cichorium intybus*, the root of which, when roasted and ground, forms the well-known adulteration of coffee. Some persons consider the admixture of chicory with coffee an improvement, and at all events harmless, but investigations of the “‘Lancet’ Sanitary Commission,” in England, tend to show that infusion of chicory, alone especially, and also when mixed with coffee in the proportion of twenty-five per cent., produced sense of weight at the stomach, languor, and headache; it has, by an eminent European authority, been assigned as one of the exciting causes of amaurosis. Infusion of chicory occasionally acts as an aperient, at other times as a diuretic. In consequence of chicory not containing essential oil, it has not, when roasted, the fragrance of coffee, its infusion has a “sweetish and mawkish taste, and is dark-colored, thick and glutinous.” But although chicory is used as an adulteration, the “Lancet” investigations go to prove that it is itself extensively adulterated with various substances. These are, “carrot, parsnip, mangel-wurzel, beans, lupin seeds, wheat, rye, dog biscuit, burnt sugar, red earth, horse chestnut, acorns, oak bark, tan, mahogany sawdust, baked horse’s and bullock’s liver, Hamburg powder,” which consists of peas roasted and ground, and colored with the next article, “Venetian red,” also an adulteration. Perhaps after such disclosures, few persons will prefer chicory in their coffee; and, at all events, the moral fraud of vending for the pure article that which is mixed, ought not to be suffered. When hot water has been allowed to

stand for some time on coffee containing chicory powder, the grains of the latter lose their color, and resemble small brown sago, whilst those of the coffee become rather darker than before. (See COFFEE.)

CHILBLAIN, *tshil'-blane*. A chilblain is an inflammatory affection of the skin, more particularly of the fingers or toes, caused by alternations of cold and heat, and is characterized rather by irritating and troublesome itching than by pain. Persons of fine skin, scrofulous constitution, or languid circulation, are most liable to suffer from chilblains, and old people and children more than those of middle life. The sudden exposure of the skin to heat when very cold, is generally, and justly, considered to be an exciting cause of the affection, but one quite as frequent, is keeping the surface in a state of artificial warmth by the use of sleeping socks and hot applications in bed, or of fur-lined shoes and foot-warmers in the day-time. All these applications keep the skin in a continual state of unnatural perspiration, weaken its tone, and so render it more susceptible of the effects of cold, when exposed to it. To prevent chilblains, in the predisposed, the feet ought to be regularly bathed with cold—or, in the case of the aged, tepid—water, or salt water, every morning, and afterwards well rubbed with a rough towel. To keep the feet warm, exercise should be depended upon rather than artificial heat. When chilblains have formed and the skin is unbroken, stimulant applications, such as brandy, camphorated spirit, paregoric, or turpentine, will any of them be of service, applied by means of a piece of linen, or gently rubbed on. When the skin of a chilblain breaks, an ulcer is the consequence, which discharges a thin slimy fluid and is often difficult to heal. In this case, the inflammation should be subdued in the first place by means of a poultice, and afterwards an ointment used, made either with 40 drops of extract of lead, or 10 grains of red precipitate to the ounce of lard. Of course all friction or pressure from boots or shoes must be guarded against.

Chilblains, when the skin is unbroken, are said to be quickly cured by the following:

Take of Tincture of iodine.....Two drams.

Chlorinated solution of soda.....Six drams.—*Mix.*

Apply over inflamed parts twice or thrice daily, drying in before the fire.

The following ointment is also very good, and may be used whether the skin is broken or not:

Take of Benzoate of zinc.....One scruple.

Fresh lard.....One ounce.—*Mix.*

To be applied night and morning.

The following domestic remedy is also sometimes of service: Shake well together in a bottle, spirits of turpentine, white vinegar, and the

contents of an egg, in equal proportions. Rub gently when the chilblains are in a state of irritation, and until the redness and swelling are dissipated.

Two parts of glycerine to 100 of collodion make an excellent protective application.

When there is great pain and irritation, the following powerful remedy may be used:

Take of Tincture of aconite.....	One ounce and a half.
Atropia.....	Two grains.
Rectified spirit.....	Half an ounce.— <i>Mix.</i>

Twenty drops to be rubbed into the affected parts night and morning. It is not to be applied where the skin is broken. This preparation is poisonous, and should be marked poison.

CHILDBED, *tshild'-bed*. The term may be applied either to the actual labor itself, or to the confinement generally, from the first commencement of the symptoms to the completion of convalescence. It is in the latter sense it will be considered in this article.

The process of childbirth consists of a series of the most beautiful adaptations to the mechanism and structural and vital endowments of the human frame, with every providential provision for the safety both of the mother and infant, during the trying but important event. When the full period of pregnancy is completed, the process which is to free the womb of its contents, commences with the preparatory relaxation of the various parts connected with the passage of the child into the world; shortly, the long-closed orifice, or "mouth" of the organ begins to open or dilate, allowing, in the first place, the protrusion of the membranous bag which contains the fluid, or waters, in which the infant floats, and which protrusion forms a soft wedge, dilating the maternal structures preparatory to the passage of the hard head of the infant, which follows as propelled by the expulsive efforts of the womb. Sooner or later, however, this membranous bag gives way under the pressure, the waters are discharged with a gush, and the head itself becomes, in great measure, the dilating agent. Although not in the position at the commencement of labor, at its conclusion, the head of the infant should pass from the mother with the face looking directly backwards, and in the great majority of cases it does so, attaining the position by a series of turns which cannot be profitably explained to the unprofessional. In some cases, however, the position of the head is reversed, so that it passes with the face directed forwards, causing a more protracted and painful labor. Moreover, the head may not come forward, or "present" first, at all, but some other portion of the child, causing an irregular or cross birth.

Most women form, or endeavor to form, a calculation as to the period at which they may expect to be confined, and while some do it with considerable apparent exactness, others get far wrong, much to the inconvenience of themselves and of those appointed to attend upon them. The most usual calculation as regards the duration of pregnancy, is forty weeks from the last menstrual crisis, and this is generally made the basis of the calculation; but as more cases fall within the period than extend beyond it, it is safer for expectant mothers to arrange their preparations for the thirty-eighth week than later. By some it is thought that the duration of pregnancy in the case of a male child is longer than in that of a female. As, however, cases of premature confinement of living children are not uncommon, it is always desirable that essentials be provided for as early as possible.

The most generally received premonitory sign of approaching labor at the full period, is "sinking;" that is, from twenty-four to forty-eight hours before the actual process commences, the female seems as if she were smaller and lighter altogether, the waist especially showing a diminution in size. At this time, also, there is generally a degree of fidgetiness, or undefined mental anxiety, similar to that which is observable in the lower animals, and there frequently exists irritability of the bowels and bladder, calling for repeated efforts at relief. When the bowels are very troublesome, and there is much involuntary straining, or, as it is called, "tenesmus:" nothing relieves more than an injection consisting of $\frac{1}{2}$ pint of gruel with 20 drops of laudanum. At length, slight twinges of pain are experienced, either in the womb itself, or in the back, hips and thighs, or in all together, and there is more or less discharge of slimy mucus, generally streaked with blood: shivering, with nausea or vomiting, are also frequent concomitants of the first accession of labor.

As time advances, the pains become more defined and regular, and when these, the "grinding" pains, have fairly commenced, the first stage of labor may be considered as established. This stage lasts, on an average, from six to twelve hours, but may, of course, much exceed, or fall short of this stated period; during its continuance, the mouth of the womb undergoes "dilatation," or full opening. Towards the close of the first or dilating stage of labor, the pains are altered in character, and become expulsive, or as they are popularly termed, "bearing down," at first slightly so, but as the process advances, their forcing character is more strongly marked, and in most instances, the nearer the birth of the child, the more powerful and nearly connected are they, until at last the infant is expelled. Generally towards the middle of the expulsive stage, the "waters" are discharged; the sudden gush sometimes causes

alarm to the inexperienced, who ought on this account to be forewarned of the circumstance. The whole process of labor, in the case of first children, averages from twelve to thirty hours; it is, however, not only as regards time, but in every other respect, liable to great variation. Attacks of spurious pain, resembling true labor, are not uncommon during the last month of pregnancy, but these may be known by the absence of the previous sinking, and of most of the other symptoms above enumerated, as characteristic of the real process. The attack is often the result of confined bowels, or of indigestion, and is removable by a tablespoonful of castor-oil with 10 drops of laudanum, or by a dose of rhubarb and magnesia. Occasionally, active labor commences with a species of spurious spasmodic pains, which want the regularity of the true ones, and only worry and exhaust the patient, who is herself conscious that they are "doing no good." In such a case, the best treatment is to administer 25 drops of laudanum, and to keep the patient perfectly quiet, so that she may sleep if possible; if she does so, in all probability she wakes in a few hours with real labor in full activity; but sometimes even sleep does not intervene, the anodyne seems at once to convert the spasmodic into the real useful labor pain, and contrary to its usual effect, actually to stimulate the progress of the case. Occasionally, when labor has reached a certain stage, pain becomes suspended without obvious cause, and continues so, for a longer or shorter period; in such cases patience is the best resource, unless the cessation of pain appears to be connected with some of the complications of childbirth to be hereafter noticed. The discharge of the waters is sometimes the first sign of the commencement of labor, or perhaps, more correctly, their discharge from imprudent exertions, such as shakes, jumps, etc., hurry on the process, which, in such cases, is often lingering. This premature discharge not unfrequently occurs, when some other portion of the child than the head is first in the birth. It being pre-supposed, that every female in expectation of her confinement, if inexperienced herself, will, under the advice and guidance of female friends, provide for, and make those arrangements most suited to her individual case and circumstances, as soon as the first symptoms of approaching labor exhibit themselves, the female attendants ought certainly to be summoned; but should a medical man be engaged, it is proper before sending for him, to feel assured that the process has commenced in earnest. When sinking pains recurring regularly every ten minutes or quarter of an hour, are accompanied with slight "show," as the discharge of slimy mucus is termed, the medical attendant may be safely summoned, and he will, or ought to see to all subsequent details.

A word or two in reference to trusting entirely to unprofessional assistance in the important operation of parturition, may not be out of place here.

In natural labor, under ordinary circumstances, a calm, judicious, not too self-reliant female attendant, who has had some experience in previous cases, may easily perform all that is to be done. But serious results have followed, on account of absence of skilled help when emergencies have suddenly arisen, and it is in view of the liability to these very emergencies that it is so desirable, in all cases, to have a physician present, or at least, within easy call. There may be malposition of the child, which the female may not detect, alarming and dangerous flooding may immediately follow the birth of the child, the placenta may be adherent to the walls of the womb. There may be fatal syncope on the part of the mother, or suffocation of the child, all of which may be speedily remedied by a professional man, but may speedily prove fatal in his absence. Even though none of these alarming symptoms should suddenly present themselves, many long hours of pain are frequently saved to the suffering female by the assistance in little details, which none knows so well how to render as the competent physician.

When female attendance is trusted to, these details require to be carefully and judiciously insisted upon :

A lying-in chamber ought to be as roomy, and, whilst free from draughts, as well ventilated as circumstances will permit. (See BED-ROOM.) The bed should be of such moderate height, that an attendant can conveniently give assistance to the patient. A mattress is always preferable to feathers, and curtains, as in beds generally, are better dispensed with. In addition to the ordinary furniture, a night-chair and bed-pan should be provided ; and a vessel of some kind which can be used as a bath for the infant. Some water-proof material is requisite for "guarding" the bed against injury from moisture. Formerly, a prepared skin used to be the general material, but there are now many water-proof articles, quite as well or better adapted for this purpose. Sheet gutta-percha answers well, and is cheap. An easy chair, a pitcher for pure water, a little brandy, a fan, and bottle of smelling salts, cups and vessels, including a sick-feeder (see BED-ROOM) for administering either food or medicine, are all advantageous additions to the numerous little etceteras ; these are, sponge, washing flannel, and starch powder ; a little lard without salt, or cold cream, soft towels, and abundance of napkins or doubles ; four ties or ligatures, each six inches long, and composed severally of four plies of stout linen thread ; a pair of blunt-pointed scissors that will cut, and a flannel receiver for the infant. A

little laudanum and sal-volatile ought always to be at hand; but when a medical man is in attendance, he more generally carries those with him.

One female friend, and no more, in addition to the nurse, should be present at the accouchement; but it is advisable to have another female in the house, though not actually present in the room, particularly if a midwife only has charge of the case. Mothers ought never to be present at the confinement of their daughters.

As soon as labor commences, the chamber should be prepared, all extraneous articles removed, and whatever may be wanted put in order; the guard placed upon the bed, and the latter so arranged that when the patient lies upon her left side near the edge of it, there may be plenty of room for those about her to pass and act. The patient herself ought to be encouraged to walk about, and her mind kept occupied and cheerful by conversation; light nourishment, such as a cup of tea or gruel, being given as desired, in small quantity at once; at this time, too, if the bowels are at all confined, they should be unloaded by a dose of castor-oil, or better still, by an injection, consisting of a pint of thin gruel, to which a tablespoonful of olive-oil is added. As time advances, and as soon as the pains exhibit signs of "bearing down," the patient, if not previously undressed, should now be so, and the folded binder—(see BINDER)—placed on the abdomen, so as to give gentle and equable support. The patient may still continue to walk about a little, but as soon as the pains become decidedly expulsive, she must be placed in bed upon her left side, and remain so, unless raised up for necessary purposes, until the infant is born. During all this time the room should be kept moderately cool—if regulated by a thermometer, about 55° Fahr. The patient, most likely, particularly towards the end of her labor, will become extremely hot, and then the occasional and moderate use of the fan is very agreeable. She should be induced, from time to time, to take a few spoonfuls of gruel; but the stomach is not to be overloaded, and above all things, the pernicious and too prevalent custom of giving stimulants, brandy, rum, etc., is to be avoided. A case which really requires such aids, requires also the presence of a medical man to sanction and regulate their use; if given when not required, feverish heat, headache, thirst, general uncomfortableness, and it may be after bad consequences, are the only results. Among the lower, and indeed among some of the better classes, it is customary for patients to be "put to bed" in their day-clothes; independent of the uncleanness of the proceeding, it is not at all times free from danger, when, after the confinement is over, it becomes requisite to remove these clothes, and substitute the bed-dress; the usual excuse, that it is for the support given by the corsets, is quite inadmissible when the binder is used, which amply

supplies the place of the above undesirable articles; besides, the presence of the corsets and clothes may seriously interfere with measures which must be taken in some particular cases, such as those of flooding. Another practice which is often followed by midwives cannot be too strongly condemned, it is that of delivery being effected with the patient kneeling on the floor; it is highly dangerous. Such attention must always be given to the bladder that it may be duly emptied, although, in most instances, the sensations of the patient herself ensure this point.

When the last strong pains of labor are expelling the head of the child, the midwife who has, or who ought to have, sufficient experience to be aware of the progress of the case, should elevate the upper knee during the occurrence of each pain, for the purpose of affording free space; this mode of proceeding is preferable to the pillow placed between the knees, which heats, and is always getting displaced. A towel or some such material is frequently attached to the bed-post or some fixed point, and many women appear to derive comfort from holding it during the paroxysm of pain; it may be permitted, if it does not encourage too great efforts at straining. The feet must be kept warm; cold feet may retard the frequency and force of the pains.

It cannot be too strongly impressed upon the minds of all, that child-birth is a natural process, and one fully competent in all ordinary cases—and in more extraordinary ones that might be imagined—to accomplish its end, safely and unassisted. And without assistance, or any attempt at assistance, it must and ought to be completed as far as female attendance is concerned.

As soon as the head of the infant is born, the attendant midwife ought to pass her fingers around its neck, to ascertain, as sometime occurs, that the navel cord is not twisted around it; should it be so, she must endeavor gently to slip it over the head, otherwise the neck may be so strongly compressed as to occasion fatal strangulation. The cord may be coiled once, or two or three times around the neck. At this period also, the mouth and nostrils of the child—if there is any delay in the passage of the body—should be kept as free as possible from the surrounding discharges, which may be drawn in by the efforts to breathe. Neither ought the body, nor even the legs of the infant, to be drawn from the mother, their expulsion should be left to the natural efforts of the womb, for if too suddenly emptied, its natural action becomes embarrassed, and irregular contraction, accompanied with unnecessary pain and discharge, may be the consequence. The infant being fully born, the navel cord must be tied by the ligatures, which have been ready provided; the first being placed about three fingers' breadth from

the body of the child, and the other about an inch and a half further; the intervening portion of cord being divided by the scissors. The infant now separated from the mother is to be placed in the flannel, in the arms of the nurse, and put in a moderately warm situation. (See CHILD.)

In tying the navel cord, one or two cautions are requisite. The first ligature must not be placed nearer the body than the distance above-named; and before the second is put on, it is well—to prevent spurting—to squeeze the blood up toward the body of the mother, out of the intervening portion. For cutting the cord, a pair of blunt-pointed scissors should be used, and care taken at the moment that no other portion of the child is intruded between the blades; it has occurred that a finger or toe has been lopped off by a careless attendant. After the cord is cut through, the cut extremity attached to the child must be carefully examined, to make sure that it does not bleed, particularly if the cord be thicker than usual, in which case the tying must be most carefully performed. From careless tying and neglect, infants have been bled to death from the navel vessels immediately after birth. Should the infant not appear to breathe as soon as born, it is well to delay the severance of the cord for a minute or two, whilst at the same time the mouth and nostrils are freed from all adhering mucus, and efforts are made to rouse, by blowing upon the face, or by two or three smart taps on the back. As soon as the infant is separated from the mother, it is proper to ascertain by the hand placed upon the abdomen that there is not a twin child; if there be, the remaining bulk will indicate it in a way that can scarcely be mistaken, and should it prove so, the recurrence of the pain which is to effect the expulsion of the second child, must be quietly waited for, unless hemorrhage, or some other occurrence, dictates a different course. In most cases of twin children, the second is quickly and easily born, after pain sets in.

When labor is completed, the binder must be tightened up, so as to give gentle and comfortable support to the now lax abdomen, and the patient left quiet until the accession of pain gives signal of the throwing off of the after-birth. (See AFTER-BIRTH.) When this is affected, the binder will again require slight tightening, and a warm napkin, sprinkled with brandy or whiskey, applied to the mother. At this time, chillness, succeeding the profuse perspiration, is often complained of, and should be counteracted by some additional covering. The female must now be allowed to remain quiet, but not left alone, and so far attended to, that any symptoms of faintness, or undue discharge of blood—flooding—may be detected. If all goes well, in the course of half an hour, if desired, a cupful of gruel or arrowroot may be given; in the course of another

half hour, a dry, warm, open, flannel shirt, and dry napkins should be substituted for those which have become wet; by this time, everything ought to be arranged and quiet for the patient's repose.

Such are the incidents of natural and regular labor; and could we calculate upon the process following undeviatingly the same course in all cases, it might safely and at all times be left to the care of judicious and instructed females; but, as too well known, accidents and difficulties of the most formidable nature will arise, which tax to the utmost the skill and nerve of the well-educated practitioner; and with some, this is an argument why every case of confinement should be attended by a medical man—in many situations at least, a physical impossibility. As, therefore, many cases must be left to female care, the foregoing directions will, it is trusted, lead to their safer and better management, whilst those which are to follow are intended to point out what cases ought never to be trusted to a female attendant, and what symptoms occurring in a case under female care, indicate the approach of such difficulty or danger as requires the attendance of the male accoucheur. As a general rule, in a first confinement, it is always desirable to have the attendance of a medical practitioner, and especially so, should the female be the subject of any deformity, such as curvature of the spine, should she in early life have suffered from any tendency to rickets, or been the subject of epileptic fits at any period of life. Also, if there exists any suspicion of heart or other organic disease. If a previous confinement has in any way been irregular, or has required instrumental or artificial delivery of any kind; if convulsive fits have occurred; or if there has been flooding, either from difficulty with the after-birth, or any other cause, the woman ought never to trust herself in the hands of a female.

When a midwife, either professed or otherwise, is in attendance upon a case, fainting coming on at any period, any symptoms of wandering or delirium, or of convulsion, any unusual discharge of blood whilst the process is going on, should at once be the signal for summoning medical assistance; also, should the labor be more than usually protracted, without obvious cause, provided the pains are regular, sufficiently numerous, or forcible; should the navel cord, or anything unusual, such as the infant's hand, be felt protruding externally; and lastly, after the child is born, should there be any difficulty with the after-birth—(see AFTER-BIRTH)—either with or without flooding, medical aid should be summoned at once.

In the interval which must or may elapse in many cases before medical assistance can be obtained, should fainting come on, the female must be laid on the bed with the head on a level with the body, air should be freely admitted around her, and smelling salts used

to the nostrils, whilst brandy or whiskey, or sal-volatile are administered by the mouth. It ought to be ascertained whether there is any discharge of blood externally, and if so, cloths, dipped in cold or iced water, are to be freely used to the lower part of the bowels. Wandering or delirium, or convulsion, must be soothed by the most perfect quiet, and by the free use of cold applications to the head, and mustard plasters to the calves of the legs; whilst if the person is of full habit, and if the face is full and flushed, from six to a dozen leeches are to be applied to the temples. In all cases of unusual discharge of blood, the measures recommended under the article ABORTION are to be employed, and it must be borne in mind, that if the accident occurs after the birth of the child, firm pads composed of folded napkins must be kept firmly bound over the situation of the womb—in other words, one or two inches below the navel—and kept there whilst cold is used to the external parts. In a case of sudden and profuse outward flooding after the birth of the child, occurring in a thin individual, much may be done to arrest it, by some one instantly pressing the hand firmly and steadily upon the belly—at the navel—until the pulsation of the great main artery, or aorta, is felt, and felt as arrested by the pressure, to beat up to the hand, but not beyond.

It must, however, be kept in mind that alarming, and even fatal loss of blood—internal hemorrhage as it is called—may be going on within the womb, and yet be unmanifested by any outward flow, the first signal of the mischief, probably, being faintness, and if the abdomen is now examined, it will be found to have enlarged more or less since the birth of the child. This dangerous condition requires the most energetic and well-directed efforts of a medical man to save life, and not one moment should be lost in procuring the assistance. In the interval, the binder well spread over the bowels, and two or three folded napkins placed underneath it, to assist the pressure, is to be tightened well up, and in addition, firm pressure must be exercised with the expanded hands of an attendant on the outside of the binder. By this method, the ordinary attendants will do more to retard the further filling of the womb with blood; at the same time cold is to be used to the lower part of the bowels, and stimulants given sparingly. The medical man, on his arrival, will take much more active measures which could not properly be employed by others. The above dangerous accident of the lying-in chamber will sometimes occur in spite of every care, but it frequently results from bad management, such as too sudden emptying of the womb by abstracting the child, instead of allowing the natural efforts to accomplish the entire process; by impatience with the after-birth, neglect in putting on the binder insufficiently, or not at all, or by moving

too soon after delivery. The existence of cough has a tendency to promote its occurrence. The occurrence of internal flooding is sometimes indicated by continued pain complained of in the bowels or back, differing from the usual intermittent after-pain.

astly, whatever accident may occur in the lying-in room, it should be the endeavor of those around to avoid the excited hurrying, which too often seeks to do everything, and does everything but what is right. This is one reason at least why it is proper to exclude all but the necessary attendants, and especially mothers, from the scene; they communicate their own alarm to the patient, and aggravate the danger, if it exists, by so doing.

When a female has enjoyed a few hours' repose after her delivery, if the bladder has not been relieved, it should now be so; a little light nourishment, such as gruel, taken, and the infant applied to the breast, whether it appears to contain milk or not. (See BREAST.) If the confinement be a first one, the after-pains will scarcely give trouble. When they are severe, 20 drops of laudanum may be given in a little water. (See AFTER-PAINS.) Perfect quietude is to be observed.

It is not probable that the bowels will act of themselves, particularly if opium has been given; it is therefore right on the morning of the third day after confinement to give an aperient. Castor-oil is almost universally prescribed; but when the person is of full habit, and if there exists any tendency to fever, a common black draught is preferable. After the bowels have been moved, the patient, if doing well, is to be allowed an improved diet; a little meat soup, or light pudding; and now, provided it can be done without putting the person in the erect posture, the bed may be made, and the night-clothes changed. After the fourth day, according to the state of the patient, a little solid animal food is to be allowed; but stimulants, whether immediately after the confinement, or during the period of convalescence, should never be taken unless for some special reason, such as great debility. At the end of the week, if all goes on well, the female may get on the sofa, towards the tenth day begin to get her feet to the ground, and gradually return to her usual mode of life. During the whole of the convalescence, there is no greater comfort, or more salutary practice than the free use of tepid water, so as to preserve the strictest cleanliness; by the use of gutta-percha sheeting, or some other waterproof article, drawn under the patient, it may be fully employed without wetting the bed.

When a confinement has been a moderately favorable one, if the foregoing directions are attended to, there are few cases that will not progress regularly to complete convalescence; it is true, that among the poor some of the means and conveniences cannot be carried out or pro-

cured as fully as could be wished ; but the most essential, fresh air and cleanliness, are mostly at command, and might be more freely taken advantage of than they are, and in all cases something like moderate care ought to be observed—which is too often not the case. As regards comforts and conveniences, in no way can the charity of the more fortunate be applied to the relief of their poorer sisters, than in the provision both of linen, lent—and diet bestowed, suitable to the time of trial, when poverty is often so severely felt.

But recovery after child-birth does not always preserve the smooth course. The accession of the milk may be accompanied with feverish excitement. This, if not extreme, is to be allayed by means of aperients castor-oil, black draught or seidlitz powder, and effervescing saline draughts, to each of which may be added five grains of nitrate of potassa. Within the first few hours or days after delivery, the woman may be attacked with shivering, or rather shaking so severe as to shake the bed, succeeded by heat of skin, thirst, delirium, and with or without severe pain in the bowels ; she is attacked with childbed fever, and cannot be too quickly seen by a medical man, in the meantime, the diet must be kept at the lowest ebb ; if time must elapse before efficient aid can be got, there should at once be given a pill composed of 1 grain of opium and 5 grains of calomel, and this repeated regularly every six hours ; if pain is severe, a dozen of leeches at least, if they can be procured, must be put on the abdomen, and if not, light hot bran poultices continually applied. If the bowels have not been moved, they must be opened by an injection of gruel and castor or olive-oil. The thirst is to be relieved by toast-water freely allowed. But the above active measures are not to be the substitutes for a medical attendant ; the attack threatens life, and may require all that skill can do for its removal ; if only a few hours are likely to elapse before aid is procured, the poultices, a single dose of calomel and opium, and the injection should only be resorted to.

If a woman, at any time during the first few weeks after her confinement, becomes excited and talkative, if she wanders slightly, if the eye becomes restless and wild-looking, and if sleep is absent, she requires immediate attention, for an attack of childbed mania is probably impending. A medical man should be immediately summoned. In the meanwhile, the most perfect quiet is to be preserved around the patient, who should be placed in bed, in a room with the light slightly shaded ; cloths dipped in cold or iced water are to be applied to the head, the feet kept perfectly warm, and the bowels, if confined, opened by a gentle aperient, but not purged. This, perhaps, is all that it is desirable should be done before the case is seen by a professional man, but on an emergency it may be requisite, without this aid, to resort to the use of

opium—Battley's sedative solution is the best—of that 10 drops, or of laudanum 15 drops, along with 1 grain of ipecacuanha powder, should be given in a little water, every half-hour, till quiet sleep is procured, or till at least four doses of either of the above have been administered.

Occasionally, shortly after labor, the skin of the patient becomes covered with a "miliary" eruption, consisting of numberless points resembling minute blisters. This is generally the result of over-heating or stimulating, and was much more frequently met with in former times than now, that a more cooling and rational system has been adopted.

The principles to be kept in mind in domestic management of childbirth, by those in attendance are: To have everything in order and ready at hand; to exclude all useless attendance; to encourage the mind of the patient; to preserve the moderate temperature of the room, and its free ventilation; to abstain from giving stimulants, and from loading the stomach with food; to have the bowels clear; to avoid all meddling interference; to summon medical assistance on the first appearance of anything unusual; lastly, let the patient be assured, that the process, though a painful, is a natural one, and He, who has ordered its marvellous arrangement and adaptations, will be present in the hour of travail. (See BINDER, PUERPERAL FEVER, PREGNANCY, CHILD, AFTER-BIRTH, AFTER-PAINS.)

CHILDBED FEVER. (See PUERPERAL FEVER.)

CHILDBIRTH. (See CHILDBED.)

CHILD, CHILDREN, CHILDHOOD, *tshild, tshil'-dren, tshild'-hood.* The period of childhood, including infancy, may be said to extend from birth to the thirteenth or fourteenth year, and truly it may be said, that the child is the father of the man, for upon the original constitution, and upon the physical and mental training of this most important epoch of human life, depends in great measure the usefulness, and consequently the happiness—it may be the eternal welfare—of the future man and woman.

INFANCY.—*Continued from Childbed.*—When an infant is born, should it, in consequence of protracted labor or some other cause, not draw breath, and appear purple on the surface, it is advisable in the first place to pass the end of the finger, covered with a piece of thin cotton or linen, into the mouth, for the purpose of clearing away the stringy mucus which not unfrequently obstructs the passage of air into the lungs. If, under these circumstances, the navel cord continues to pulsate, it should not be tied for at least two or three minutes, during which efforts are to be made to rouse the child, by blowing sharply on the face, or by one or two slight slaps on the back; at the same time an attendant ought to be getting a warm bath—temperature 98° Fahr.—in

readiness. If, after the lapse of time above-mentioned, animation still seems suspended, the cord should be tied without further delay, and the infant at once removed and placed in the warm water up to the neck, the body being well supported, and the mouth and nostrils carefully kept from being accidentally submerged. The mouth and throat having been cleared from obstructing mucus as above directed, some one, whilst the nostrils of the infant are closed, should, by placing their mouth over that of the child, endeavor to inflate the lungs with their breath, and then withdrawing the mouth, to empty them by pressure exerted upon the abdomen and sides of the chest. The direct effort to inflate the lungs having been repeated a few times, the artificial respiratory movements—alternately pressing upon the ribs and abdomen, and allowing them to recover by means of their own elasticity—should be persevered in for a considerable period. In these cases of suspended animation in infants, electricity is unquestionably a powerful restorative; but hitherto the difficulties attending its ready application just at the moment, have rendered it almost unavailable; now, however, the newly-invented electric chains of Pulvermacher will probably place in the hands of the accoucheur, and, from their simplicity, even of others, a readily applicable source of the above powerful stimulant. (See ELECTRICITY.)

When an infant exhibiting full signs of life is separated from the mother, and placed in the flannel receiver, it must not be covered up too closely—the caution is not superfluous, for infants have actually been smothered in this way by the extra carefulness of the nurse; it must, too, be placed where it will be warm. As soon as the child can be attended to, it ought to be examined all over, to ascertain whether it be perfectly formed; and the tying of the navel cord should be seen to be secure. Washing with warm soft water—temperature 98°—soap, and soft flannel, is the next requisition. The skin of a newly-born infant is covered with a white unctuous matter, which is to be removed; this should be done as gently and effectually as possible, without fraying the skin, the arm-pits and other folds of the body being particularly attended to. The child, after being washed, is often dried upon the receiver, placed on the nurse's knees; a better plan is, to have placed on the lap a moderately soft pillow, covered with two or three large warm napkins, on which to lay the child. The drying, which should be done in cold weather, at a moderate distance from a fire, having been effected gently, without scrubbing, a little starch powder should be dusted into the folds of the groins and arm-pits, but not elsewhere, unless the skin appears frayed. The portion of the navel cord remaining attached to the child, is now to be wrapped in a piece of soft linen, which is kept in place by a binder of fine flannel, five inches wide, and long enough to pass twice

round the body of the child, so as to give support without pressure, and fastened by needle and thread—not by pins: if too firmly applied the respiration of the infant is interfered with. The remainder of an infant's clothing is so much regulated by custom and other considerations, that it is unnecessary to mention it here, further than to impress the rule that it should be perfectly loose and easy, and fastened entirely by tying or sewing. A cap should never be placed upon a child's head, which is naturally hot enough to do without artificial covering. When the infant has been dressed, it should be laid to rest in the cradle, or place prepared for it, perhaps beside its mother, but at all events where it will be perfectly warm. It will probably sleep for some hours. It ought not be fed for the first few hours after birth. As too frequently practised, the unfortunate baby is dosed with "rue tea," "sugar and butter," or some such mess, or stuffed with soaked bread or gruel, and the first foundation laid of the disordered bowels, wind, screaminings, etc., etc., which are so general in young infants. When the infant wakes from its first sleep, or, at all events, in the course of four or five hours after birth, it should be put to the breast; even should there not be sufficient secretion of milk to satisfy the child, it is well both for it and the mother, that it should be thus early induced to take the nipple. If, as may occur, the milk-flow is delayed, it will be necessary to give the infant the artificial support of cow's milk, unskimmed, but diluted with half water, and very slightly sweetened; this may be given, either from a common nursing bottle, or by means of a spoon, but the former is preferable. On no account should anything like bread, gruel, or the like, be allowed to pass the lips of a newly-born infant, unless under the pressure of extreme necessity, such as might happen on board ship, and then, the powder of grated biscuit, or of twice-baked bread, softened in water, is the least hurtful substitute. The first milk of the mother is thin and serous, and is generally considered to exert an aperient action upon the infant's bowels, by which the slimy olive-green discharge named "meconium," which first occurs from them, is carried off. Should the bowels not act within twenty-four hours after birth, from 6 to 8 drops of castor-oil should be given, mixed with a small quantity of moist sugar. Should this have no effect, it may be repeated; but should the infant appear to make the straining effort to relieve the bowels, without its being effected, the vent ought to be carefully examined by a medical man, as it may happen that closure of the bowels, complete or partial, exists, but which may, nevertheless, be remediable. The case is not common, but its possibility is not to be forgotten.

The majority of mothers are able, and ought, as a sacred duty, to

nurse their own infants; but cases occur in which, from illness succeeding the confinement, or from general weakness of constitution, a female is unable to do so, either with benefit to herself or the child. When she cannot, it becomes a serious question, whether the duty of nursing is to be devolved upon another, or whether the infant is to be brought up by hand. The general voice says the former, the author confidently asserts that the latter is preferable. In the first place, it is requisite to provide a nurse, whose own infant is of the age, or nearly so, of the infant to be wet-nursed; it will not do to put a young infant to the breast which has been nursing for many weeks or months. This is the first but the lightest difficulty. But there is a much more serious consideration. We have yet to learn the full measure of influence, both physical and mental, which may be exerted upon the child by the peculiar physical and mental constitution of the foster-mother from which it draws its first nourishment. It is true the physical development is generally rigorously scrutinized, but how are passions and mental tendencies to be measured, and we do know that the class from which wet-nurses are often selected, are certainly not in the habit of controlling their appetites and passions; and farther we know, that the physical qualities, at least, of the milk, are very liable to be affected by the mental emotions of the nurse; here at least is one source of danger, were we sure, which we are not, that there is no deeper, more lasting, life-felt influence exerted. And withal, it is quite possible, that some physical taint, venereal perhaps—it has happened and may happen—has escaped the searching examination of the selecting physician. These are all serious considerations for a mother before she submits her child to draw its first nourishment from the body of a stranger, one too, who must either be suffering from the intense grief which every mother feels who loses her infant from her breast, and whose milk must be affected by that grief, or who must have been compelled by poverty, and all its physical evils, to undertake the task; or one whose mental constitution is so unscrupulous, that, without necessity, she will consent for gain, to cast aside her own infant, and, at the risk of its welfare, give its birthright to a stranger. Are any of these the qualifications which a mother will choose for the nurse of her child, even if she has the selfishness to tempt another to desert her own legitimate offspring. Medical men often witness the painful sight of one infant declining away, whilst the mother is nourishing another into strength. The system and importance of wet-nursing has been much over-rated; for it is perfectly possible, if the care and trouble requisite will be incurred, to bring up a child by hand, as well and healthily as at the breast of a foster-mother. Care and trouble it does involve, but if these are grudged, the child had better go to its grave at once.

In bringing up a child by hand, milk must be its only nourishment for the first three or four months. Ass's milk, or goat's milk, may be employed, but more generally cow's milk will be used, either with or without the cream removed, according to its richness, and according—as the first few days' experience will show—to its effect upon the infant. The milk is to be diluted with one-half water, and just perceptibly sweetened. It is not to be given by spoon, but by means of a common nursing-bottle, which should always be of glass; of these bottles there should be two, both on account of accidents, and also, that the unvarying and essential cleanliness may be observed. Without the most scrupulous care—and on this depends the success of bringing a child up by hand—the purity and wholesomeness of the food cannot be preserved. The milk and water should be mixed fresh, at least twice a day, and, in summer kept in vessels immersed in cold water; it is to be given to the child at nearly the temperature of the body—about 96°. The food is to be sucked from the bottle, and much care is requisite in the management of the artificial nipple. It should, without being too impervious, occasion the infant some exertion to draw the milk through it, if it does not, the child is apt to over-fill the stomach, and loses the exercise which it has when it draws its nourishment from the breast of the mother. Silver nipples are generally too hard for the gums. India-rubber nipples of excellent quality are now made. Wash-leather or parchment, double linen, and muslin, are also used for this purpose. Whichever is used, it must be made up into the form of a cone, or like a small jelly-bag, with a piece of sponge about the size of a large pea, to give a little substance, fastened inside by one or two stitches passed through. The nipple must then be firmly secured to the end of the feeding-bottle, and will require changing every day, otherwise it becomes sour-smelling and unwholesome, independent of which, wash-leather thickens and becomes impervious, and the other materials are apt to wear through. Again it is repeated, that the most thorough cleanliness, in milk-can, bottle, and nipple, is to be observed, and must, except in rare instances, be a mother's care. Another caution is requisite. In feeding children from the bottle, careless nurses may frequently be observed to incline it the wrong way, so that the infant goes on for a time sucking wind. The best nursing bottles, however, are so constructed that this cannot occur while there is milk in the bottle. For the first three or four months this milk and water food is all that is requisite, with the addition if at any time the bowels should be too much relaxed, of a portion of isinglass, from one to two small teaspoonfuls dissolved in the half-pint of fluid. About the fourth or fifth month, a small portion of arrowroot or wheat flour may be boiled in the water before it is added to the milk, and about the

seventh or eighth month, the spoon may be used to give some of the more solid milk and farinaceous preparations. In bringing up by hand, as well as at the breast, during the first three months at least, the child will require feeding about six or seven times in the twenty-four hours. At first, about 6 tablespoonfuls, or $1\frac{1}{2}$ fluid ounces may be given at each feeding on the average, and this quantity may be gradually increased. Small delicate children, however, will scarcely take half this quantity, and great care must be taken, both with them and others, not to allow the stomach to be overloaded. If an infant is habitually vomiting after feeding, the quantity allowed at once must be reduced, for, though happily the infant stomach relieves itself easily of superfluous food, it is better to avoid the superfluity, notwithstanding the popular fallacy that vomiting or spewing is a sign of infant health.

The system of rearing by hand is much more prevalent in some parts of Germany than in this country. The following passage from the work of Dr. Andrew Combe, the substance of which he says he derived from the German work of Dr. Von Ammon, is so full of practical instruction, that the author makes no apology for quoting it at length:

"In some constitutions, however, cow's milk does not agree when merely diluted and sweetened; but answers perfectly well when a large proportion of water and a small quantity of any well-prepared farinaceous substance is added. In this case, it is a common custom in some parts of Germany to dilute the milk with a weak infusion of any light aromatic, such as linden-tree flowers, instead of pure water. But after the first month or two, where diluted milk does not agree, a small proportion of well-boiled arrowroot, grated Dutch rusk, or well-baked or toasted bread, sometimes forms a very useful addition wherewith to thicken the milk to the consistence of thin gruel. Briand, indeed, remarks that milk diluted and boiled for a length of time with any light farinaceous substance, is more easily digested by some infants than pure milk: and that when the use of milk alone is followed by white and curdy evacuations, a change to a *bouilli*, made of milk and farina, often restores them to a healthy color and consistence. For this reason, he recommends panada, made by boiling for a length of time in water, or milk and water, thin slices of bread, previously well dried in the oven. Another of which he speaks highly, is the *creme de pain*, made by infusing in water for several hours well-baked bread, previously dried in the oven in slices, and boiling it gently for some hours more, adding water from time to time to prevent it becoming too thick. It is then strained and sweetened, and a few drops of orange-flower water are added. For infants a few months old, arrowroot, sago, or semolina, may be used in the same way. The *bouilli* in common

use in France as the first food of infants, is made by gently roasting the best wheat-flour in an oven, then boiling it for a considerable time, either in water, or in milk and water, and adding sugar to it. When carefully made, not too thick, and free from knots, it is considered an excellent food, especially where the use of milk excites a tendency to diarrhœa, or colicky pains. On changing to the *bouilli*, the digestion immediately improves, and the evacuations become healthy and unattended by pain."

"*In some instances, especially when the bowels are sluggish, barley-water or thin gruel, with or without the addition of weak chicken-tea, or beef-tea, answers best; and the grand rule ought to be to follow what seems best suited to the individual constitution. In soft flabby children, the chicken or beef-tea is often most useful; while in thin, active, and irritable infants, the milder milk and farinaceous diet answers best. But in trying the effect of any alteration, we must not be too rash, and because no advantage is apparent within a day or two, conclude that therefore it will not agree. In many instances, the effects of a partial change of diet show themselves so gradually, that it is sometimes only after an interval of a week or two, or even longer, that we can tell positively whether benefit will result from it or not.*"

When the infant is to be nursed at the breast of its mother, it ought, as above directed, to be put to it, unless some cogent reason forbids, within six hours after birth, and from that time it will require it every three or four hours for the first few months. It may be requisite, either from weakness of the child, or some other cause, to have the nipple drawn out either by a stronger or older infant, or by some other means. Should the mother not be able to nurse her infant entirely, the extra feeding must be conducted upon the rules laid down for bringing up by hand.

The first few weeks of an infant's life are spent principally in sleeping and taking nourishment, movement is but little indulged in, and consequently the power of sustaining the animal temperature is but slight; for this reason care is always requisite that sufficient heat be preserved, both of clothing and of situation, during the day, and by the infant sleeping with its mother or nurse during the night, for the first few weeks of its life at least. Equally important with temperature, nay even more so, is the purity of the atmosphere which a young child breathes; errors in this respect have led to the most deplorable loss of infant life. One instance is sufficient to illustrate this point: it is the well-known one of the Lying-in Hospital of Dublin, in which, at one period, one child out of every six died within the first fortnight of existence, but by the adoption of proper means of ventilation, this very

great mortality was at once reduced to one death for every nineteen or twenty children born. It is unnecessary here to repeat what has been said in the article *BED-ROOM*, upon the means of ventilation, etc., and to that article the reader is referred. The cradle or bassinet in which an infant sleeps should not be smothered up with curtains, and it is better, for some time at least, without sheets, light blankets only being used.

The mattress should be hair, if possible, but where economy is requisite, cotton-wool will answer the purpose; it should be protected from wet by means of waterproof material of some kind. A pillow too large and soft is not advisable, for by allowing the head to sink into it, an injurious amount of heat and perspiration is promoted, and the child rendered susceptible of cold when taken up. The skin of an infant requires the most scrupulous care; by its powerful agency it frees the body from matter which must be noxious if retained, and which is especially apt to act injuriously upon the susceptible infant nervous system. The skin ought to be washed with tepid water and soap, night and morning, and after each washing, reaction promoted by gentle friction with the hand for a few minutes. Care must always be taken that the situation for washing is sufficiently warm, but not, as too often the case, before a scorching fire; draughts of air are especially to be guarded against. Before leaving this subject, it is requisite to notice the filthy custom, that has been observed, of allowing the scurf, the oily secretion, and the dirt, to cake upon the skin of the head, under the idea that it preserves from cold. The habit is not only disgusting, but is productive of disease—perfect cleanliness is requisite here as elsewhere.

In fat children, the creases or folds in the skin require extra attention, from the liability of the opposed surfaces to become inflamed, and to pour out an irritating moisture; dusting with starch-powder, or the intervention of a piece of soft linen spread with simple cerate, (see *CERATE*) may either of them be used as a remedy. The portion of navel cord which is left attached to the child, will require attention. This separates by a kind of moist decay; it may come off entirely by the fourth day, or take a fortnight to do so; it must never be hurried. Generally, when the navel separates, it leaves the puckered closing of the skin perfectly complete; it sometimes, however, occurs that bleeding or inflammation and ulceration take place at the time of separation; such cases ought at once to be placed under medical care. When actual bleeding occurs, the condition is all but hopeless. When the opening at the navel does not thoroughly close at birth, protrusion of a portion of the bowel takes place when the child cries. This state of things, apt to occur when the cord has been of more than average thickness, requires much attention, as the comfort and safety of the individual, especially of a female, in

after life, may be considerably interfered with, if the malformation is not, as it may be, cured in childhood. The belly-band, or binder, has of course considerable power in preventing the protrusion through the navel opening; but in these cases it is not sufficient; and for the first few weeks, one or two graduated compresses, made of folded linen, should be placed over the navel, underneath the binder; and when the child is a month or six weeks old, the following apparatus must be used: From a cork, the diameter of which is about half as large again as that of the protrusion, a slice the eighth of an inch thick is to be cut, flatly padded, covered with linen, and affixed to two cross pieces of plaster by stitching. The plasters being warmed before application, are used to retain the padded cork directly over the opening of the navel; above all, the binder is applied. The plasters will probably require renewal every few days. It is better to trust to the linen pads alone, as long as any tendency to inflammation of the skin exists, using at the same time a plaster of simple cerate or gold-beater's leaf next the skin. Instead of either linen or cork pad, one of vulcanized India-rubber, filled with air, might be substituted. The treatment of navel protrusion, or hernia, in infants, and the management of the apparatus, involves some amount of care and trouble, but not more than the necessity and importance of the evil demands for its rectification. In such cases, the infant should be kept from crying by all reasonable means, the best preventive being the careful attention to the rules of health laid down in this article.

Rupture at the groin may occur in children at birth, and may be suspected to exist, when unusual fulness or swelling is observed in this situation, and if the fulness and tension is increased when the child cries, the case should at once be seen by a medical man.

Any malformation with which an infant is born, ought as soon as possible to be submitted to the judgment of the surgeon, so that he may have full opportunity of fixing the appropriate time for its rectification or removal. The operations for hare-lip, distorted joints, such as club-feet, are now performed at a much earlier period than they were formerly. In the case of vascular nævus, or mother-mark, (which see) which often increases rapidly from a mere perceptible point to a large size, surgical interference as early as possible is most important. These nævi are composed of so thick a network of capillary vessels as to be almost spongy, and should they be accidentally wounded, bleed freely, and if of any size, dangerously; they vary in color from bright red to purple; if the finger be pressed upon a nævus, it becomes emptied of blood, and pale; but the instant the pressure is removed, the blood, and consequently the color, instantly return. There are various methods employed for their removal; but the one used in each case must depend upon the

surgeon; a simple, painless, and frequently successful mode of cure, is vaccinating upon the nævus, which is cured by the inflammation which takes place in the progress of the cow-pox. The possibility of this being done is an additional reason why the disease should be seen as early as possible by a medical man. The continued use of the compound tincture of iodine to a nævus, the surface being painted over with it night and morning, will, sometimes, if perseveringly adhered to, be successful in removing it; the application being intermitted for a few days should the skin become sore.

Tongue-tying in infants is not uncommon; it depends on too great prolongation of the "frænum," or bridle which retains the tongue in place. It is easily rectified by a snip of the surgeon's blunt-pointed scissors.

The time at which an infant may first be taken out of doors after birth, must depend, of course, greatly upon the time of year; in fine warm summer weather, in the course of ten days or a fortnight, it will be safe to make the change; in winter it can scarcely be prudent to do so for a month or six weeks, and then only on a fine day. In either case, free exposure in the house should first be practised, the first airing should not extend longer than twenty minutes, and the eyes, especially at first, must be shaded from the glare of the sunlight; of course, either the chill of morning, or the damp of evening, must be avoided. A young infant should not be taken out during the prevalence of east wind.

The principal ailments, likely to come under domestic management, to which infants are liable, are thrush, red gum, colicky-pains in the bowels, and diarrhœa. For the first—thrush—the reader is referred to that article. Red gum is a mild species of "papular" eruption, to which many children are subject soon after birth. It is quite devoid of danger, and requires no treatment if the bowels are in good order, if not, a dose or two of castor-oil may be given. The usual friction after washing must be moderate during its continuance. Inflammatory swelling of the breasts in infants is not unfrequent; gentle friction with camphorated oil, three or four times a day, will suffice to remove it. Most infants are troubled, more or less, with wind, or colicky-pains in the bowels, and not unfrequently with diarrhœa, but these are much aggravated by errors in feeding so universally prevalent, particularly among the poorer classes; sometimes when the child is nursed entirely at the breast, particularly of a wet-nurse, they are caused by the nurse's transgressions in diet. Attention to the rules already laid down relating to feeding, will greatly prevent the above ailments; but when they do occur, they must be rectified as simply as possible, but never by the dangerous and baneful quack carminatives so extensively sold and used.

Pain, and wind in the bowels in children, are generally connected with superabundant acidity; for the correction of the cause and its consequences, either of the two following mixtures may be used moderately, both with safety and good effect. No. 1:

Take of Calcined magnesia.....Twelve grains.
Dill water.....One and a half ounces.—*Mix.*

No. 2:

Take of Prepared chalk.....Ten grains.
Dill water.....One and a half ounces.—*Mix.*

Of either of the above mixtures, a small teaspoonful may be given, and repeated if requisite. The first, or No. 1, is to be selected, should the bowels be at all confined; the second, No 2, should they be too relaxed. It is not recommended that either of these medicines, simple as they are, or any others, are to be given too freely to infants, and on every slight occasion, but it is better to give them than to allow a child to suffer; they, or something similar, ought to be the substitutes in every nursery for the secret quack nostrums. It is true they will not either as quickly stop pain, or sleep a child, as mixtures which contain opium or poppy syrup; but they cannot, like them, either put it into its last long sleep by an over-dose, or injure not less fatally, when frequently used, even in small doses, by gradually disordering the brain and nervous system. When either of the mixtures above recommended are given to children, or indeed whenever magnesia or chalk is given habitually, it is always prudent to give an occasional dose of castor-oil, as cases have occurred in which concretions of chalk, and of magnesia, have accumulated in the intestines. The dose of castor-oil for a young infant may be from 10 drops to $\frac{1}{2}$ a teaspoonful. In cases of diarrhoea, should the affection be slight, and the infant be a hand-nursed one, the addition of isinglass to the milk food will, in most cases, stop the tendency at once, particularly if assisted by a few doses of mixture No. 2, and by a warm bath for five or six minutes, at a temperature of 98° , regulated by a thermometer. Should the affection be more severe, the emulsion of castor-oil with yolk of egg (see CASTOR-OIL) must be given. To $1\frac{1}{2}$ ounces of the emulsion, made with 1 teaspoonful of castor-oil, 2 drops of laudanum, or 20 drops of paregoric are to be added, and 1 teaspoonful, or twelfth part, given once in six hours. And here the opportunity is taken to warn, respecting the administration of opiates to children. They are most susceptible of the influence of the drug, and accidents are continually occurring—more frequently perhaps than comes to light—from its effects; a single drop of laudanum has been known to prove fatal to a young infant. The above treatment is given, not as an inducement for parents, who can readily procure medical aid, to take the treatment of their children, when ill,

into their own hands, but it is because it may be of service in situations when skilled assistance is not readily procurable. Many of the diseases of children commence insidiously, but after attaining a certain stage, run their course rapidly. No parent, therefore, who either values his child's life, or his own peace of mind, should delay procuring medical assistance when real illness shows itself; but at the same time, the very same reason ought to induce every parent to inform himself upon the nature of the symptoms which most generally usher in real illness in children, and also, how and by what means the illness which these symptoms indicate, is to be most effectually retarded and obviated. More upon this head will be given when the diseases of childhood generally are touched upon. Within the first five months of an infant's life, vaccination ought to be performed, that is, before the constitution is liable to suffer from the irritation of teething. (See VACCINATION.)

The period of teething varies extremely, and not less so in the manner in which it affects children. For information upon the mode in which the teeth are developed, the reader is referred to the articles TEETH and DENTITION. Some children cut the two front teeth of the lower jaw—which always appear first—as early as the fourth or fifth month, whilst others, apparently equally strong, do not have them developed within the year. The usual, and popularly received sign of approaching tooth-cutting, is watering of the mouth, but this may continue for many weeks before the teeth appear. Before the teeth come through, the gums flatten on the top, look semi-transparent and full, and are sometimes extremely swollen and inflamed. The constitution of the child always sympathizes more or less with the cutting of the teeth, most simply and beneficially so by the occurrence of mild diarrhœa, which is always—unless it goes to an undue extent—a safeguard, and is better not interfered with. When the gums are much swollen and inflamed, and must be very painful, the susceptible brain and nervous system of the child is strongly and injuriously affected by the irritation. The little sufferer is fevered, flushed in the cheeks, and peevish, sleep is disturbed with moaning and starting, and the fingers are constantly in the mouth, or the lower jaw is moved from side to side. In such cases, lancing the gums thoroughly, warm baths, and aperients if the bowels are not relaxed, are the remedies, the first especially, without which the others are useless or nearly so. The popular idea, that lancing the gums is beneficial, by assisting the passage of the teeth through them, is quite erroneous, and may lead to an erroneous method of performing this simple little operation, which every parent who lives at a distance from medical assistance, and particularly in emigrant life, ought to know how to do. The real benefit is derived from the relief which the incisions

afford to the tense and distended gum, and from the slight flow of blood which follows, and on this account it is advisable, not only to cut the upper surface, but also the side of the gum, so as to divide the vessels freely. The operation is most conveniently and safely done by a "gum lancet" made for the purpose—but a common penknife may be employed on emergency, the blade being wrapped with a piece of linen, to within a short distance of the point, to prevent any chance to cut the lips. It is superfluous to describe this simple proceeding, it should be seen done once, or at least the method shown. It is not recommended, of course, that the gums are to be lanced for every slight irritation of teething, but when the child exhibits the graver symptoms above described, it ought to be done at once, and, if requisite repeated again and again. In addition to lancing the gums, a warm bath for ten minutes will be found eminently serviceable in soothing the irritated system, and aperients should be given—2 grains of gray powder at night, followed by a small teaspoonful of castor-oil in the morning, or if stronger action be thought requisite, a powder composed of 1 grain of calomel to 2 of powdered scammony is to be given at bedtime to a child of six or eight months old. If the irritation attendant on teething produces convulsion, medical aid must be had as soon as possible, and in the meantime, those remedies employed which are suitable. (See CONVULSION.)

In judging of the diseases of children, it ought to be borne in mind that the pulse of an infant is always quick, averaging from 120 to 130 in the minute, and that at the end of the first year its average is still considerably above 100. (See PULSE.)

The regulation of the exercise of young children is of much importance. At first, the mere respiratory movements, occasional crying, and the effort of sucking, are exercises sufficient, if *gentle* nursing movements be employed; but gentle they must be; the system so often adopted of jerking infants about is much to be condemned, and may be extremely hurtful. In the course of a few weeks after birth, the infant begins to show signs of increased power of movement, and evidently experiences physical pleasure in the exercise of its limbs; as time goes on, its next effort is to sit up in the nurse's arms, till, if a vigorous healthy child, at about fourteen months, generally, it tries to walk;—all these movements will come spontaneously to the child, when its frame and muscular powers are adequate to the exertion, but they should never be forced. It is astonishing what an amount of practical ignorance prevails on the above point; children are put to sit in chairs, held upon their feet, or put in go-carts of various construction, long before the bones are fit to bear the weight, and curved spines and distorted legs are the consequences. Again, it is repeated, every advance of the child towards walking and

the upright position, can only be safe when spontaneous. When a child first commences walking it must get falls, but it is surprising how little material injury the head, which most generally suffers, seems to receive. At the same time, in families in which tendency to head affection exists, extra care must be taken—a padded band round the head is a useful and frequently used protection. (See *Walking* in article EXERCISE.)

We make the following extract, as showing the sort of observation and knowledge required by those who would be skilful nurses for children:

—“The signs of disease differ, as well according to the age of the child, as according to the disease from which it is suffering. Cries are the only language which a young baby has to express its distress; as smiles, and laughter, and merry antics tell, without a word, of its gladness. The baby must be ill, is all its cries tell one person; another, who has seen much of sick children, will gather from them more, and will be able to judge whether its suffering is in the head, or chest, or stomach. The cries of a baby with stomach-ache are loud, and long, and passionate; it sheds a profusion of tears; now stops for a moment, and then begins again; drawing up its legs to its stomach, and, as the pain passes off, stretches them out again; and, with many little sobs, passes off into a quiet sleep. If it have inflammation of its chest, it does not cry aloud, it weeps no tears; but every few minutes, especially after drawing a deeper breath than before, or after each short, hacking cough, it gives a little cry, which it checks apparently before it is half finished; and this either because it has no breath to waste in cries, or because the effort makes its breathing more painful. If disease is going on in the head, the child will utter sharp, piercing shrieks, and then, between whiles, a low moan or wail, or perhaps no sound at all; but will lie quiet, apparently dozing, till pain wakes it up again.” This is quoted as an instance of the kind of observation that is required, and to show how much a skilful nurse in such matters may help the doctor to find out quickly what is the matter with his little patient who cannot speak for himself. It is very often the case that, when a child’s nurse is asked what sort of a night he has passed, she either can give no answer at all, or one which is quite unsatisfactory. How important a question this is, however, may be in some degree realized by reading the following, (from Dr. West’s “How to nurse sick children,”—an English work): —“With the approach of night very many diseases get worse; and while you expect this is to be the case, you must carefully notice what are the signs of increased illness which, in each instance, manifest themselves. Fever is generally higher—you must notice if it is very much so; the dull, heavy state of many children suffering from inflammation of the brain, or from some forms of fever, in which they lie

dozing during the day, is often succeeded by delirium and loud outcries for some hours at night; or, if the child sleeps, it talks much in its sleep about its lessons or its play; and the observation that these things have happened, will serve to help the doctor in his judgment. If, though these things do not occur, yet the child is restless, you must try to ascertain from what cause. It may be from pain, or it may be from thirst, or from cough which disturbs the child, or from difficult breathing, which grows worse whenever the child falls asleep, and then wakes him up again every few minutes; or it may be from that sleeplessness which illness brings with it. If, then, you are to give a useful report to the doctor at his visit, you must not merely be able to tell whether the child slept or was restless, but you must have watched so attentively as to be able to describe exactly the manner in which the night was passed; to report when the child slept, and how—when it was restless, and why.” A good nurse further observes all particulars relating to the breathing of her little patient, cough, etc.; whether there is any tendency to vomiting, or to excessive thirst; whether there has occurred anything like a convulsion, drawing in of the fingers or toes, squinting, or twisting of the features, flushing of the face, any eruption on the skin, or any fact whatever which may be of importance.

One of the most common and troublesome matters to deal with in the case of infants is a tendency to excoriation and redness of the skin in those suffering from diarrhœa. Now, this is very troublesome; and from the excessive irritation gives rise to great suffering. It can be almost entirely prevented by extreme cleanliness and good management after the bowels are moved. Soap must not, however, be used, as it increases the irritation, but very thin starch should be employed instead. The child should then be carefully dried with a soft napkin, and the parts dusted with Fuller’s earth or with zinc powder, and afterwards dressed with an ointment made with one dram of benzoate of zinc to an ounce of lard. The ointment must be kept quite fresh, as rancid ointments never fail to increase the irritation and soreness.

Many children are destroyed by being too much moved about when suffering from exhaustion owing to excessive vomiting, purging, or some severe disease. In such cases the little patient is lifted by its mother or nurse from its cot many times in an hour, whereas it should never be removed from the recumbent posture at all. By turning it from side to side it may be shifted and changed, and even a new night-gown may be put on in this way, if it is slit up the back and run together afterwards by means of a few stitches.

Vomiting and diarrhœa are among the most frequent troubles of children, especially those that are brought up by hand; in fact, many

children at one time or another of their existence are reduced so low by them that, to an inexperienced spectator, it would seem almost impossible they could recover. Now, in checking the tendency to these, the nurse can do a great deal by means of a little common sense, and can greatly aid the doctor. Foolish and inexperienced nurses, when a child vomits or purges after everything that he takes, go on cramming him with food under the idea that as what he has had has come back or gone through him, it can have done him no good, and therefore he had better have some more. It is painful to see the poor little creatures sometimes in this state, vomiting taking place every time they are moved. The obvious indication under such circumstances is to give the tired and irritable stomach an hour or two's rest at a time, and then cautiously at first, and without moving the child, give only a small teaspoonful of cold water, to be followed, if that is retained, by a little cold milk and water, or something of the simplest description, small in quantity and *cold*. If that is retained, a gradual return to its accustomed food may be attempted. Chlorodyne is a most useful addition to our medicines for children's diseases, especially diarrhœa. It requires, however, to be very carefully and cautiously used. (See CHLORODYNE.)

When a child begins to walk, and to attempt to talk, the period of infancy may be considered as ended, and childhood begun. Many of the directions applicable to the former are equally so, in a modified degree, to the latter, and *vice versa*; but "childhood" requires further remark. When distinct nursing is no longer requisite, the child becomes more truly the inhabitant of *The Nursery*, and much of its health and happiness for the next few years of its life, will depend upon the proper regulation of this important department of the household.

Whatever is said respecting the necessity for pure air and ventilation, either in this article or any other, such as BED-ROOM, AIR, HOUSES, VENTILATION, etc., applies to the nursery, or rather nurseries; for every parent, whose means will admit, should provide a night and a day nursery for his children, and in neither should such operations as washing clothes, cooking, etc., ever be carried on. The double room will allow of all necessary airings, washings of floors, etc., to be perfectly carried out without the health or comfort of the children being interfered with. Should one nursery only be available, the children should be taken out of it as soon as possible after rising in the morning, the windows thrown wide open, and all necessary cleaning performed before they again enter it, and, both now and at every period of the day, all kinds of slops removed. Should any action of the bowels take place during the night, the receptacle should be put out of the room at once. The observations respecting the sanitary regulation of the nursery, are more particularly

applicable in the case of the middle classes, who lack the abundant accommodation of the wealthy, and whose children, in towns at least, do not have the same free access to the open air, as those of their poorer neighbors. The situation of a nursery in the house is important; it must, if possible, be in the upper stories, it should have a south aspect, abundantly supplied with light—the latter is a most necessary consideration. A guarded open fire-place is one of the best means of warmth, and the heat, regulated by a thermometer, should be kept as near 60° as possible.

But, however salubrious the nursery arrangements, children must have as much open air as possible; when the exercise can be taken as play, in summer, upon the grass, or otherwise, it is quite the most beneficial; when weather and other considerations forbid, and walking is had recourse to, it must not go to the extent of real fatigue. At all times it adds much to the beneficial effect of exercise if the mind be engaged pleasantly in it—and therefore, all active plays, either in-doors or out, are preferable to the mere walk, which few children enjoy. The clothing during the whole period of childhood, in a changeable climate, requires much attention; woolen texture next the skin, both winter and summer, is indispensable for health; during the former season, it should cover the chest and abdomen, and come at least half way down the thighs; in the latter, it may be a lighter material, and not extend so far over the chest; woolen stockings extending over the knees ought always to be worn in winter, and at all times should the entire clothing be such as will keep the surface of the skin comfortably warm; there is no greater or more fatal error than that which exposes children lightly clad to the influences of our variable climate, with the view of hardening them.

Thorough purification of the skin must be maintained. A child should be washed all over with soap and water at least once a day. In the case of strong children, the water may be cold, in the weaker, tepid, and in both friction with a tolerably rough towel should be used after the bath, both to cleanse and to promote reaction. If a child continues chilled and cold-looking, and appears languid after a cold bath, it is a sign it does not agree, and the temperature of the water should be raised, or the washing should first be performed in tepid water, and just at the last, a little cold water dashed over the body. (See ABLUTION, BATHS AND BATHING.)

The food in childhood claims care, equally with air, clothing, exercise, and cleanliness; its regulation in infancy has already been sufficiently noticed. For strong, healthy children, particularly those inclined to full or gross habit, the milk and farinaceous—such as rice,

sago, bread, etc.—cannot be exchanged for a better, for the first fourteen months at least, but if children are delicate, and incline to the lymphatic constitution, the use of animal broths ought to be commenced even as early as the sixth month. The broth made from fowl, mutton, beef, or veal, should not be too strong, should be free from fat, and is better thickened with arrowroot or sago for a young child, or with rice or bread-crumbs for an older one. Towards the twelfth month, a lightly boiled egg may be given, but quite the best method of giving the powerful nutriment of egg to children, is to break the raw egg into some one of the milk preparations, whilst the latter is quite hot, and to beat up together. In this way, the albumen is sufficiently cooked, but not hardened. When the teeth of a child are sufficiently advanced to masticate it, animal food in the solid form may be given, but the quantity and frequency must entirely depend upon the constitution of the child. Strong, ruddy children are better with it only twice or three times a week; weaker children should have it once a day at least, and in the more advanced stages of childhood, perhaps twice, but this is a point which should be settled by a medical adviser. Potatoes, and the more wholesome vegetables, ripe fruits in their season, may all be allowed to children, in moderation, after the first eighteen months, and particularly should there be a tendency to costiveness, or to eruptions on the skin, and other affections depending upon gross habit of body; weaker children may also partake of them, but more moderately, and provided they do not become substituted for more indispensably nourishing food. Children at any age are better without baked pastry of any kind, but boiled paste puddings are not unwholesome;—cheese, and all sorts of spiced and seasoned dishes are quite objectionable. A healthy child should never have an alcoholic stimulant within its lips, and tea or coffee, if allowed, should be very weak, and made with much milk; but there are some delicate children, nay infants, who may derive much benefit from a portion of alcoholic stimulant, carefully given as medicine, and as medicine requiring so much care and consideration, that it should only be employed when and as advised by a medical man. Children should not be made to wait long without some nourishment in the morning; the rapid changes which go on in their system render them peculiarly sensitive to any, even temporary, want of nourishment. Regularity in meals is important even from the earliest period of existence; it is always advisable that the principal meal be taken early in the day.

Physical training, however, and the closest attention to physical regulations, require the addition of mental training to carry out thoroughly even the physical education of a child. For the infant a cheerful

nurse is most valuable. As childhood advances, whatever may depress or frighten ought especially to be guarded against, and all threats or practices which excite undefined terror, especially avoided. Affection of the brain may be the result. Undue precocity in a child should always be regarded, if not with alarm, at least with suspicion. Many scrofulous children are unusually precocious, and as a general rule in such instances, the brain is more prone to disease, which may end life, or predispose to mental affection. In such cases it is of the highest importance not only to avoid everything which can stimulate to mental effort, but to excite them to such moderate and regular physical exertion, as will in some degree draw off from the brain itself, both the activity of circulation and of nervous energy. (See *PRECOCITY*.)

There are some diseases which are more particularly considered as those of childhood, such are measles, whooping-cough, scarlet fever, small-pox at times, and chicken-pox, not that they do not occur in adults, but more generally, being passed through but once, it is in the earlier years of life. In addition to the above, such affections of the brain as acute inflammation ending in effusion of water, convulsive disease, croup, inflammation of the lungs, and summer complaint, are the most common acute affections of children. They and other diseases may be referred to under their proper heads. Children quickly exhibit the general symptoms of illness, but it often requires much more tact and discrimination to make out its exact seat and nature than it does in the case of adults; it is, therefore, always desirable to place them under proper medical care as quickly as possible, at the same time the following ought to be some guide as to the site of the affection, and to its provisional treatment:

When in a child complaining of illness, or appearing ill, the eyes look heavy, and are wholly or partially closed against the light, if the brow is contracted, and if with these symptoms there is general fever, some acute affection of the head is to be dreaded, and the indications should not be neglected for an hour; if vomiting is present with the above, so much the worse. Oppression of the breathing, along with general appearance of depression, is often the forerunner of severe inflammatory affection of the chest, which may be considered as established, if heat of skin, general fever, rapid breathing and cough succeed. In the chest affections of children, the movements of the nostrils are much affected. Constipation, which can scarcely be classed as a disease, is almost natural to some children, but requires correction, and this should be effected if possible by food. Coarse wheat bread or corn bread should always be employed, and fruits, either cooked or ripe, such as roasted apples, given in moderation; honey or treacle are use-

ful, but nothing is more so, than the daily use of porridge made from oatmeal. When the tendency to constipation in children cannot be overcome by diet, the next best remedy is the use of a small enema or injection of gruel, simply or medicated with castor-oil, senna, or any simple aperient, or made with soap water, but the simple gruel ought always to be tried first. Dr. Marshall Hall considers, that in children especially, the use of warm injections exerts a peculiarly beneficial effect in stimulating the liver. An injection for a child of six years old, should not exceed 12 ounces, and ought to be administered slowly. When medicine must be given, as general aperients, castor-oil or infusion of senna are most useful; caution must, however, be exerted in forcing the former medicine—as sometimes must be the case—upon very young children; death has been occasioned from its getting into the windpipe. The aromatic syrup of rhubarb is a most excellent, safe and pleasant aperient medicine for children; but where a tendency to constipation exists, it should not be habitually used, on account of its subsequent astringent action; magnesia is easily given in milk, and may be useful either in the solid or fluid form where active effects are not required, but the former especially ought not to be long continued. Calomel and gray powder, given alone, are too much given for their aperient action; they should not be administered except under medical sanction.

As a general rule, in giving medicine to children, deception should not be practised; but whilst the child knows that it is medicine which it takes, it ought to have it in as palatable a form as may be, without interfering with the efficacy of the drug. Refer to articles on diseases and medicines generally. (See ABLUTION, BATHS, BED-ROOM, SLEEP, VENTILATION, CLOTHING, DIET, MILK, OATMEAL, EXERCISE, ELECTRICITY, BREAST, SKIN, TEETH, EMACIATION, SNUFFLES, COUGH, VACCINATION, CRY OF CHILDREN, SCREAMING, FEAR, RUPTURE, SANITARY SCIENCE, HEALTH, CONTAGION, COLD FEET, MINERAL WATERS.)

CHILD-CROWING, OR SPASMODIC CROUP. (See CROUP, FALSE.)

CHILDHOOD. (See AGE, CHILD.)

CHILL FEVER, *chil fe'-vur*, a common name for one of the forms of ague, and hence the treatment is the same as prescribed in article AGUE (which see).

CHIMAPHILA UMBELLATA, *ki-ma-fil'-a um-bel-la'-ta*, Prince's Pine, or Pipsissewa, a plant belonging to the Nat. order *Pyrolaceæ*. It is also known by the common names, ground leaf, ground holly, American wintergreen, king's cure, rheumatism-weed. This is a small evergreen plant, growing in the northern latitude of this country, Europe and Asia. The whole plant is endowed with active properties,

tonic, diuretic and astringent. Highly recommended in dropsy; useful in disordered digestion and general debility, rheumatism, and disorders of the kidney, scrofula, in obstinate, ill-conditioned ulcers, in cutaneous eruptions, and in chronic affections of the urinary organs. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 10 to 20 grains; of the decoction, 1 to 4 fluid ounces; to be taken three times a day. (See DECOCTION.)

CHIMNEY, *chim'-ne*. A chimney, by intention the channel by which the smoke and fumes of fire are conveyed away, also performs the no less important, but scarcely—until of late—calculated upon, office of a ventilator. In former times, when the fire-place formed almost a separate chamber, *in* which persons sat round the fire, or indeed as long as it retained its ample dimensions, the people enjoyed an efficient means of ventilation, although in ignorance of the benefit. By change of fashion, the chimney has been gradually contracted and lowered to the model of the present modern fire-place; whilst this has been done, from ignorance of the necessity for pure air, no provision has been made to supply the loss of the efficient ventilating power of the old-fashioned construction, and consequently health must have suffered, and does suffer materially from the omission, although it is to be hoped that the diffusion of popular knowledge upon this and other points of sanitary regulation, will not allow such to be the case much longer. The fire-place, however, is a notable instance of society enjoying ignorantly an arrangement conducive to health; and that ignorance, whilst making alterations more consistent with comfort and convenience, doing away with one great advantage, of which it remains for science to point out both the loss and the means of reparation. As whatever goes up, or ought to go up, the chimney, are vapors and gases which cannot remain down without injury to health, it is a matter of importance that the fire-place of a house draw well, more especially those of bed-rooms in which fire is used. As a means of ventilation simply, independent of the fire, the importance of a fire-place is so great, that rooms in this climate which are destitute of one cannot be considered healthy, although it must be confessed, that this secondary office appended to the original intention, is rather a clumsy method of effecting so important an end; it is one, however, of which it is requisite to make the most, and therefore fire-places ought to have a thorough good draught for smoke, ought never to be stopped when not in use, unless other means of efficient ventilation are possessed, and, when possible, should be fitted with some efficient mechanical contrivance for increasing their ventilating power. (See BED-ROOM, VENTILATION, AIR, AERATION, CARBONIC ACID, STOVES, ETC.)

CHIMNEY-SWEEP'S CANCER. (See CANCER SCROTI.)

CHIOCOCCA RACEMOSA, *ki-o-kok'-ka ra-se-mo'-sq*, or cahinca, a climbing shrub belonging to the Nat. order *Cinchonaceæ*. It is sometimes called snowberry. It is a native of the West Indies, South America, and of the sea-coast of Florida. The bark of the root is the part used. In medium doses it augments the urinary discharge, and slightly increases the action of the heart, besides increasing the peristaltic action of the bowels. If warm infusions of this drug be drunk, and the body be kept warm, it will produce perspiration instead of purging. In large doses it is a violent emetic. It has been found very efficient in dropsy, amenorrhœa, rheumatism, and syphilis. In Brazil, it is used as an antidote to poisonous snake-bites. Dose of the powdered root-bark, 20 to 60 grains, three or four times a day.

CHIONANTHUS VIRGINICA, *ki-o-nan'-thus vir-jin'-e-ka*, or fringe tree. A shrub belonging to the Nat. order *Oleaceæ*. The bark of the root is the part used. It is aperient, alterative, and diuretic. An infusion is found beneficial in bilious and typhoid fevers, as well as in obstinate intermittents. The dose of the infusion is from 2 to 10 large tablespoonfuls four times a day. (See INFUSION.)

CHIRETTA OR CHIRATA. (See OPHELIA CHIRATA.)

CHLORAL, *klo'-ral*, is a thin, oily, colorless fluid, of a peculiar penetrating odor, which excites tears, and with but little taste. It is prepared by passing perfectly dry chlorine into anhydrous alcohol to saturation, whence the name. It is freely soluble in water, alcohol, and ether; boils at 201°, and has a density of 1.5. Mixed with its own volume of water and evaporated, it forms a white crystalline mass called the *Hydrate of Chloral*, which has been found to possess properties analogous to those of chloroform, but its effects are produced more slowly, and last for a much longer time. It is administered by the stomach, and its action is owing to the production of chloroform in the system by means of the alkalies of the blood. It acts as a powerful sedative on the motor and sensory nerves and seems to have also a contracting influence over the arteries. As a narcotic it is much safer and more certain than opium, and is without any of its unpleasant after-symptoms. The sleep produced is calm and refreshing. In painful diseases, as neuralgia, gout, cancer, burns, etc., in sleeplessness, or nervous agitation, delirium tremens, insanity, and the like, it is found to be of the greatest service. Dose, from 15 or 20 to 60 grains. (See ANÆSTHETICS; ETHER, SULPHURIC; CHLOROFORM.)

CHLORATE OF POTASH, *klo'-rat*, is usually formed by passing chlorine through a mixture of solution of caustic potash and hydrate of lime. It is refrigerant, sudorific and diuretic. This medi-

cine has been very successfully employed in scurvy, liver affections, canker, abscesses, boils, mercurial salivation, maternal inflammation of the mouth, eruptions, and by some practitioners mainly relied on in scarlet fever, foetid breath, diphtheria, and ordinary cases of sore throat. It is acknowledged a superior remedy in gangrene and ulceration of the mouth, destroying the disagreeable odor, diminishing the discharge of saliva, and expediting granulation. Some authorities pronounce it a sedative to the nervous and circulatory systems, and a stimulant to the digestive and urinary organs. Dr. Watson states that 1 dram dissolved in 1 pint of water is a beneficial daily drink in typhoid fever. It may be applied externally as a wash or injection in solution of 6 to 20 grains to 1 fluid ounce of water. It answers thus in affections of the mouth and throat, aided by internal administration. In persistent sore mouth or throat, and whenever ulceration exists, a very strong solution must be used, which may be prepared by putting 2 teaspoonfuls of chlorate of potash into an ordinary-sized coffee cup, and filling it with boiling hot water. Use this as a gargle several times a day. 1 fluid ounce of water dissolves about 25 grains of the crystals. In internal administration no nicety need be observed in the dose. As a prophylactic in salivation, small doses will serve. Ordinary dose, 10 grains in water, three or four times a day. (See POTASH, CHLORIC ACID, GARGLES, ETC.)

CHLORIC ACID, *klo'-rik*, is formed by passing a current of chlorine through an alkaline solution when the chloride of the metal and the chlorate of the alkali are formed. It is colorless, strongly acid, has an oily consistence, and a pungent smell. It is not decomposed by light, and its oxidizing properties are very powerful. It forms salts with bases, called chlorates, which are decomposed by heat, the chloride of the metal being left behind, while oxygen is liberated. The most useful of them is the chlorate of potash, which is formed by passing chlorine through a solution of caustic potash: chloride of potash and chloride of potassium are formed, the former being separated by crystallization. (See CHLORATE OF POTASH.)

CHLORIC ETHER, *klo'-rik e'-ther*, is called in the British Pharmacopœia, spirit of chloroform. There are few remedies more generally used in all spasmodic affections, such as asthma, coughs, etc. It is also of great value as a sedative in painful affections, especially in combination with opium and other remedies. Owing to its intensely sweet taste, it is much used to make certain mixtures more palatable. It is invaluable as a diffusible stimulant in cases of great debility, and of obstruction to the respiration occurring in the course of heart or pulmonary disease, or both. The following prescription, which will be

found as palatable as most liqueur, may be taken in cases of difficulty of breathing, faintness, etc.:

Take of Spirit of chloroform.....Three drams.

Compound tincture of cardamoms.....Five drams.—*Mix.*

A teaspoonful to be taken in a wine-glassful of water when required. Or,

Take of Spirit of chloroform.....Two drams.

Tincture of ginger.....Six drams.—*Mix.*

A teaspoonful to be taken in a wine-glassful of water. (See ETHER SULPHURIC.)

CHLORIDE OF LIME, CHLORINATED LIME. (See CALCIUM, CHLORINE.)

CHLORIDE OF SODIUM. (See SALT.)

CHLORINE, *klo'-rin* [Gr. *chloros*, green]—symbol Cl, equivalent 35.5, specific gravity 2.44. Chlorine, dephlogisticated marine acid, or oxymuriatic acid, was discovered by Scheele in 1774, while examining an ore of manganese. It was thought at first to be a compound gas; but Gay-Lussac and Thenard supposed, and Sir Humphrey Davy proved, that it was an elementary body. It was the latter philosopher that bestowed upon it the name of chlorine, from *chloros*, green (Greek), on account of its color. It occurs in nature in great abundance, in combination with many mineral substances, such as rock-salt; also in seawater and sea-plants, as the chlorides of potassium and sodium. It may be prepared in two ways—either by heating black oxide of manganese with hydrochloric acid, or by heating a mixture of black oxide of manganese, chloride of sodium and dilute sulphuric acid. It is a transparent gas of a greenish-yellow color and a powerfully suffocating odor, which, even largely diluted with air, produces great irritation of the air-passages. It is about two and a half times heavier than atmospheric air. Water absorbs about twice its volume; it can, therefore, be only collected by displacement or over warm water. Under a pressure of four atmospheres it condenses into a yellow limpid liquid, rather heavier than water, and remains fluid and unfrozen at a temperature of—220° Fahr. With water, chlorine forms a definite hydrate, which, when subjected to a cold of 32° Fahr., solidifies in the form of large yellow crystals. Chlorine is not combustible, but supports combustion to a certain degree. Chlorine, in common with several other elementary bodies, has the property of replacing hydrogen in its organic compounds. It is in this manner that chlorine bleaches textile fabrics. The brownness of the fabric is due to some brown organic substance, which, when submitted to the action of chlorine, parts with its hydrogen and assumes a colorless form, containing chlorine. Another property of chlorine is that of destroying noxious vapors and miasmata. For the

same reason, it is used as a disinfectant, the action being the same as that mentioned above. A small proportion of chlorine gas diffused through the atmosphere, very quickly and thoroughly destroys not only the smell, but the injurious properties of floating emanations, which are capable of engendering disease. Chlorine gas is obtained in various ways, but the great magazine for its supply, is common salt, which is composed of chlorine and sodium. For sanitary purposes, various preparations, calculated to yield chlorine, simply and easily, have been used; of these the chloride of lime is the best known. Chlorine is possessed of powerful affinities, and unites with all the metalloids and metals. In Medicine, when used externally, it acts as a local irritant and rubefacient. Inhaled even when mixed with air, it causes a sensation of tightness and suffocation, and violent cough. When largely diluted it occasions a sensation of warmth in the respiratory passages, and promotes expectoration.

CHLORINE WATER, *klo'-rin waw'-tur*, is made by passing chlorine gas through water, is used externally as a caustic application to wounds caused by rabid animals, and diluted, as a wash in skin diseases, and a gargle in putrid sore throat. It is sometimes given in typhus, scarlet fever, and diseases of the liver. It is also used as an antidote in poisoning by hydrocyanic acid or sulphuretted hydrogen. The antidote to chlorine poisoning is the cautious inhaling of ammoniacal gas. Chlorine is inhaled by putting 2 ounces of chlorinated lime into a suitable apparatus, moistening it with cold water, and inhaling the vapor as it arises.

CHLORODYNE, *klor'-o-dine*, a secret medicine which has been much used as an anodyne and sedative. It was first introduced by Dr. J. Collis Browne, though the invention has been claimed by others, and has led to some expensive law suits. It is composed of chloroform, morphia, hydrocyanic acid, and certain other ingredients. Several attempts have been made to ascertain its exact composition. We give the latest and apparently the most correct:

Take of Chloroform.....	Four fluid drams.
Muriate of morphia.....	Twenty grains.
Rectified ether.....	Two fluid drams.
Oil of peppermint.....	Eight minims.
Diluted hydrocyanic acid	Four fluid drams.
Tincture of capsicum.....	Six fluid drams.
Mixture of acacia.....	One fluid ounce.
Treacle.....	Five fluid ounces.— <i>Miz.</i>

It is agreeable to the taste of many persons, and can be given either alone in water, or combined with other remedies. Perhaps its greatest value has been in cases of irritating cough, as in consumption, and in

irritation of the bowels, accompanied by pain and diarrhœa. In the former case 5 or 10 drops in an ounce of camphor mixture, three times a day, and in the latter the same dose in an ounce of chalk mixture may be given. In cases of acidity, with much irritation of the stomach, an excellent prescription is, 10 or 15 drops of chlorodyne with 15 to 20 grains of bicarbonate of soda, in a wine-glassful of water, two or three times a day. From its warm, aromatic taste, and comforting action in cases of griping and uneasiness in the bowels, it is generally a favorite remedy with patients; and, although, in the strictest sense of the word, a quack medicine, and, of course, not allowed a place in the Pharmacopœias, yet it is very much prescribed by some medical men. Either alone, or combined with other remedies, it has proved of eminent service in cases of sea-sickness which have resisted many other kinds of treatment. It has been extensively used, both in this country and abroad, domestically as well as by regular practitioners, in the treatment of diarrhœa and dysentery, and it has been authoritatively stated that it is one of the best known remedies for cholera. One thing is certain, that its uses are so varied and general that it should form part of the equipment of every domestic medicine-chest. Chlorodyne of known composition can now be obtained, so that those who have a very proper objection to using remedies the constituent parts of which are kept secret, may employ it without further scruple. In the cholera epidemic at Manilla it was stated that chlorodyne had proved more efficacious than any other remedy which had been tried. Of course, as it has the action of a powerful opiate, it must be given with extreme caution to young children, and in all cases where opiates are likely to exert an undue action.

In infantile diarrhœa 12 grains of bicarbonate of soda or baking soda, and 5 drops of chlorodyne, in $1\frac{1}{2}$ ounces of water, form an excellent mixture where there is griping and flatulence; 1 teaspoonful may be given twice or thrice in the twenty-four hours. When diarrhœa is present, chalk may be substituted for soda.

CHLOROFORM, *klo'-ro-form*, [prefix *chloro* and *formyl*], C_2HCl_3 .—This interesting compound is produced by a variety of reactions. The most usual way of preparing it is by acting upon dilute alcohol with chloride of lime. Chloroform is a colorless, volatile, mobile, highly refracting liquid, of specific gravity 1.497, and boiling at 142° Fahr. It has an ethereal odor, and a sweetish penetrating taste. It is readily soluble in ether and alcohol, but sparingly so in water. The vapor of chloroform has the remarkable property of rendering a person breathing it temporarily insensible to pain. To Professor Simpson, of Edinburgh, is due the credit of introducing chloroform as an anæsthetic. (See

ANÆSTHETICS.) Chloroform is an excellent solvent for sulphur, phosphorus, and iodine. It also readily dissolves fatty and resinous bodies. It is a perfect solvent of caoutchouc, which is left unaltered on evaporation. Chloroform is given internally in doses of 3 to 10 drops as an anodyne, stimulant, and antispasmodic. The spirit of chloroform, 1 fluid ounce of chloroform to 19 fluid ounces of rectified spirit, is given in doses of 20 to 60 drops; the compound tincture, 2 fluid ounces of chloroform, 8 fluid ounces of rectified spirit, and 10 fluid ounces of compound tincture of cardamoms, in doses of 26 to 60 drops. The liniment is composed of equal parts of chloroform and liniment of camphor, and is used as an anæsthetic application in neuralgia, rheumatism, painful tumors, etc.

The power which chloroform possesses of producing "anæsthesia," or insensibility to pain, when inhaled, is now too universally known to require comment. It is, however, too potent an agent to be trusted in unprofessional hands, except, indeed, under direct medical sanction and direction in each particular case. In the more painful and larger operations of surgery it is one of the greatest boons conferred upon suffering humanity, and its use tends to diminish the average mortality after them; in the case of minor operations, however, such as tooth-drawing, it becomes a question whether its employment is advisable; fatal cases have followed its inhalation, and although these have been in very small proportion compared with the numbers in which it is daily and hourly administered, still the fact of their having occurred, is sufficient to make us pause before incurring even the remote chance of so serious a result, for the sake of avoiding a momentary though sharp pain. Moreover, cases do occur, in which very disagreeable effects, such as headache, sickness, hysteria, etc., have succeeded the use of chloroform. No one should ever be tempted to inhale this agent, without being certain beforehand that no tendency to organic disease exists, especially of the heart or lungs.

Although not suited for domestic use as inhaled, chloroform may be employed with perfect safety and much advantage, as an external application in painful affections, of the nerves especially, such as neuralgia and toothache. For this purpose, a piece of linen or lint, of a size proportioned to the part affected, is to be soaked in the fluid, and applied to the skin, covered with some material, such as oiled silk, to prevent quick evaporation. It destroys the silk—in the course of a few seconds, it produces an intense but scarcely disagreeable burning sensation, which continues until the fluid is all dispersed. In many cases the neuralgic pain disappears at once. When the covering is removed, the portion of skin to which the chloroform has been applied is found much

reddened, sometimes slightly blistered. A small portion of cotton wool soaked in chloroform will, sometimes, if placed in the cavity, allay the pain of toothache. Chloroform, taken into the stomach, has been found useful in spasmodic diseases, asthma, hysteria, etc., and might be administered, in the absence of other remedies, in doses of from 6 to 10 drops, with 1 teaspoonful of brandy or whiskey in 3 tablespoonfuls of water. The best covering for lint soaked in chloroform when used to the skin is very thin tin foil, which is of course, unaffected by the agent, like oiled silk or gutta-percha. A most excellent and safe mode of using chloroform internally, is in the form of julep, that is, dissolved in water. If $\frac{1}{2}$ a dram by measure of chloroform be well shaken in a bottle, with 20 ounces, or 1 medicinal pint of water, it is exactly dissolved. The resulting mixture is an extremely pleasant stimulant and anodyne, and may be given in doses of from 1 to 3 tablespoonfuls, or even a little more. (See ANÆSTHETICS; ETHER, SULPHURIC; LAUGHING-GAS.)

CHLOROSIS, OR ANÆMIA, *klo-ro'-sis a-ne'-me-a* [Gr. *chloros*, green], commonly called green sickness. A disease to which young females are subject, and which is characterized by a peculiar sallow or greenish-yellow hue of the countenance, and hence known as the green sickness.

Causes.—Chlorosis or anæmia may arise from accidental causes, such as deficient nourishment, unhealthy situation, extreme loss of blood, or may be of constitutional origin. In the former case, it is generally quickly recovered from, if the constitution be a good one, under the use of iron and good living; in the latter case, it often requires long and patient perseverance in these and other means to effect a cure. The primary cause of chlorosis, or anæmia, is still obscure, but the direct cause of the symptoms is undoubtedly poverty of the blood.

Symptoms.—It is usually attended with great debility, palpitation of the heart, difficulty of breathing, pains in the back and loins, very heavy sleep, headache, mental debility, impaired, capricious, or depraved appetite, constipated bowels, swelling of the feet, general languor and listlessness, and other distressing symptoms; the monthly secretion is either absent or very pale.

Treatment.—To improve the vital fluid must be the great aim of treatment. The bowels should be kept open, not purged, by some mild aperient, such as the compound rhubarb, or colocynth pill, and 10 drops of the muriated tincture of iron, or 2 grains of the ammonio-tartrate of iron, given in a wine-glassful of water twice or three times a day. If the salicine, appetite is deficient, and does not improve, a dose of tonic bitter, quinine, or gentian, (which see) must be given along with, or substituted for 1 dose of iron. Cod-liver oil is also useful. The diet must be gen-

erous; meat twice a-day, eggs if preferred, puddings in small proportion, and bread partly substituted for vegetables. Malt liquor, porter, or beer, to the extent of one of the usual pint bottles, may be taken, in divided portions, daily, or a couple of glasses of port-wine, if the former disagrees. The patient ought to retire to rest by ten o'clock, and to rise, as a general rule, by half-past seven, but ought never to delay breakfast beyond the mere time required for dressing; going out before the meal is quite out of the question, and, indeed, in some cases, where there is a tendency to fainting, it is better to have a cup of coffee, or warm milk, before rising, and even to this, as a temporary remedy, it may be requisite to add a teaspoonful of brandy or other spirit. The skin must be attended to, but by tepid sponging only. The bed should be a hair mattress. Exercise in the open air, on foot or horseback, must be regular, but not carried beyond comfortable fatigue. Change of air to the sea-side, or to a chalybeate spring, is of great service. Mothers are often anxious about the non-appearance of the monthly discharge; its absence is but a symptom of the disease, and it is better that the constitution should not be drained even by it, until it is able to support it. Such are the general rules respecting anæmia, but a confirmed case should always be submitted to the medical man—causes may be aggravating, or effects such as consumption, springing from the disease, which he only can detect. Moreover, in extreme cases of this disease, sudden death has occurred. (See CHALYBEATE SPRINGS, MINERAL WATERS, IRON, QUININE, SALACINE, GENTIANA, CITRATE OF IRON AND STRYCHNIA, MENSTRUATION.)

CHOCOLATE. (See COCOA.)

CHOKE-CHERRY. (See CERASUS.)

CHOKE-DAMP, *tshoke'-damp* [Ang.-Sax.]. Choke-damp is a name given by miners to carbonic acid, as distinguished from fire-damp, which is carburetted hydrogen. Choke-damp is met with in rooms where charcoal is burnt, and where there is not sufficient draft to allow it to escape; in coal-pits, near lime-kilns, in breweries, and in rooms and houses where a great many people live huddled together in wretchedness and filth, and where the air in consequence becomes poisoned. This gas gives out no smell, so that we cannot know of its presence. A candle will not burn in a room which contains much of it.

Effects.—At first there is giddiness, and a great wish to sleep; after a little time, or where there is much of it present, a person feels great weight in the head and becomes stupid; gets by degrees quite unable to move, and snores as if in a deep sleep. The limbs may or may not be stiff. The heat of the body remains much the same as at first.

Treatment.—Remove the person affected into the open air, and,

even though it is cold weather, take off his clothes. Then lay him on his back, with his head slightly raised. Having done this, dash vinegar and water over the whole of the body, and rub it hard, especially the face and chest, with towels dipped in the same mixture. The hands and feet also should be rubbed with a hard brush. Apply smelling-salts to the nose, which may be tickled with a feather. Dashing cold water down the middle of the back is of great service. If the person can swallow, give him a little lemon water or vinegar and water to drink. The principal means, however, to be employed in this, as, in fact, in most cases of apparent suffocation, is what is called artificial breathing. This operation should be performed by three persons, and in the following manner: The first person should put the nozzle of a common pair of bellows into one of the patient's nostrils; the second should push down, and then thrust back, that part of the throat called "Adam's apple;" and the third should first raise and then depress the chest, one hand being placed over each side of the ribs. These three actions should be performed in the following order: First of all, the throat should be drawn down and thrust back; then the chest should be raised, and the bellows gently blown into the nostril. Directly this is done, the chest should be depressed, so as to imitate common breathing. This process should be repeated about eighteen times a minute. The mouth and the other nostril should be closed while the bellows are being blown. Persevere, if necessary, with this treatment for seven or eight hours—in fact, until the patient revives, or absolute signs of death are visible. Many lives are lost by giving it up too quickly. When the patient becomes roused, he is to be put into a warm bed, and 20 drops of sal-volatile given cautiously now and then; or if this cannot be had, a little brandy and water, or whiskey and water, may be given in like manner. This treatment is to be adopted in all cases where people are affected from breathing bad air, smells, etc. (See RESPIRATION, CARBONIC ACID, DROWNING.)

CHOKING. (See FOREIGN BODIES IN AIR PASSAGES, SUFFOCATION, ASPHYXIA, FOREIGN BODIES IN GULLET, ACCIDENTS.)

CHOLAGOGUE, *kol'-a-gog*, a term applied to purgative medicines which bring away a quantity of bile. (See CATHARTICS.)

CHOLEIC ACID. (See BILE.)

CHOLERA, ASIATIC, OR MALIGNANT, *kol'-e-ra* [Gr. *chole*, bile, and *rheo*, I flow]. This is an epidemic disease consisting of vomiting and purging, and in some respects resembling bilious cholera, but differing from it by the early supervention of collapse, the great mortality, and the suppression of bile and urine.

Causes.—Cholera is due to the presence of some poison in the blood.

The general theory of the disease is, that the symptoms of collapse are due to the violent purging, and constant retching and vomiting, but some deny this fact, and maintain that they are due to some obstruction to the circulation through the large vessels leading to the lungs; and that the suppression of bile and urine, the black color of the blood, and the coldness of the surface of the body may be accounted for by the diminished oxygenation going on in the system. Some cases have been traced to the use of impure drinking water, or unwholesome food, and in all neighborhoods where the disease is rife, the water supply should be carefully examined. This deadly malady is contagious, and may be conveyed from person to person through the medium of air or water. Dr. Pettenkoffer, of Munich, believes that the subtle poison acts like a ferment. Anything tending to debilitate the system will act as a predisposing cause of cholera, such as intemperance, uncleanness, inhalation of impure air, long-continued abstinence; and during the epidemic no drastic purgatives should be taken, for fear of laying the foundation for this epidemic distemper. At such times all cases of diarrhœa should be looked upon with suspicion.

Death may take place from exhaustion, or there may be hemorrhage from the bowels; in some cases the system becomes poisoned with the retained excreta. The mortality of the disease is fearful, for when the second stage is arrived at, nearly half die.

Symptoms.—This disease is divided by scientific writers into three stages, each attended by its own symptoms; the first is that of diarrhœa, and is marked by nausea, vomiting, and purging; in the second stage, or that of collapse, the surface of the body grows cold and blue, the features shrink, and the patient shivers; the nails turn blue, and rings which just now fitted the fingers tightly, drop off; the voice becomes low, weak, and hollow, and is peculiar to this disease, and hence called the choleraic voice, or *vox cholericæ*; the eyeballs sink in, the secretion of bile and urine is stopped, and the stools look like rice-water, and have a peculiar sickly odor. The blood is thick, black, and tarry, there are severe cramps in the legs and body, thirst becomes extreme, but the intellect remains clear. The third stage is that of consecutive fever, accompanied by renal or pulmonary congestion.

Treatment.—Dr. Watson thinks that the first stage, or that of diarrhœa, should be arrested, if possible, by astringents, thus:

Take of Prepared chalk.....	Two drams.
Powdered gum acacia.....	Two drams.
Laudanum.....	One dram.
Tincture of catechu.....	Half an ounce.
Pure water.....	Six ounces.— <i>Mix</i>

Give two tablespoonfuls every four hours.

Dr. Johnson, on the other hand, says that the vomiting and purging on no account should be stopped, but that emetics and mild purgatives should be given; and he prefers castor-oil. The diet should be scanty, and consist of milk and farinaceous food, sago, rice, arrowroot, gruel, tapioca, and oatmeal. When the symptoms of cholera are well marked, and the disease has arrived at its second stage—that of collapse—medicine has very little power over it, as seen in the many drugs which have been held up by different medical men as being almost antidotes. During the epidemics of cholera, many were the different kinds of treatment resorted to; one man trusted to brandy and opium, another to bleeding and mustard emetics; some put faith in cajeput-oil and hot baths; while others gave large doses of saline drugs, and in some few instances injected hot saline solutions into the blood. Dr. Stevens strongly advocated the alkaline treatment, and Dr. Tanner acquiesces in his views. The following was his prescription:

Take of Chloride of sodium.....	Two drams.
Carbonate of soda.....	Three drams.
Chlorate of potash.....	Forty-two grains.
Pure water.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls diluted with water every half-hour.

At the same time mustard poultices were applied to the abdomen, and alkaline injections thrown up the bowels.

Dr. Johnson treats the stage of collapse thus: no food is allowed, and only cold water to drink; emetics and mild purgatives are still persevered in; and in extreme cases bleeding is had recourse to, to relieve the congested state of the pulmonary vessels and the right side of the heart. Dr. Watson treated all his cases in the second stage, on large doses of calomel.

In the third stage, or that of consecutive fever, pulmonary engorgement may be relieved by leeches or cupping, and a mustard poultice may be applied. Should the kidneys become congested, the skin and bowels may be called into action by diaphoretic and purgative medicines, and the patient may have a few leeches applied over the affected organ.

Prevention.—During the prevalence of cholera, many err in making material changes in their ordinary modes of living, and by so disordering the regularity of the functions, lay themselves open to attacks of the disease. Of course, if a man is aware that he is habitually indulging in practices injurious to health, such as intemperance, debauchery, etc., he only acts wisely as regards his physical safety, in changing those habits, but it is hazardous to alter regular modes of living, which have hitherto been found compatible with good health, it being understood, that whatever tends to lower the standard of health, favors the attack of the

disease. There is, however, one important precaution which ought to be observed, at all times indeed, but more particularly during the epidemic of cholera, the perfect purity of the drinking-water should be ascertained, and its freedom from all decomposing organic matters made certain. Care is also to be observed not to take active purgatives, particularly salines, which produce watery evacuation; if aperient medicine is required, it ought to be of a warm character, such as magnesia and rhubarb, with some aromatic; for whatever produces free action of the bowels, apparently increases the susceptibility to attack. For this reason, too, the slightest tendency to diarrhœa should at once be arrested, by the aromatic confection or chalk-mixture, repeated as often as requisite, with the addition of from 5 to 10 drops of laudanum to each dose, and the use of milk and farinaceous preparations, containing gelatine, for food. The following will be found very useful in such cases:

Take of Confection aromatic.....	One dram.
Prepared chalk.....	One dram.
Powdered gum-arabic.....	One dram.
Pimento-water.....	Two ounces.
Pure water.....	Four ounces.
Laudanum	Forty drops.— <i>Mix.</i>

A grown person to take 2 tablespoonfuls for the first dose, and 1 tablespoonful after every evacuation of the bowels. Dose for a child between five and ten years of age, 1 teaspoonful.

The speedy adoption of these measures, in places distant from medical assistance; and their enforcement by the clergyman or some intelligent individual, might do much to check the disease. Should the astringents above recommended fail, 3 or 4 doses of acetate of lead and opium might be given by a careful person, 3 grains of the former to 1 of the latter, repeated every four or six hours. (See CHLORODYNE, HEALTH, SANITARY SCIENCE, AUTUMNAL COMPLAINTS.)

CHOLERA INFANTUM. (See SUMMER COMPLAINT.)

CHOLERA MORBUS. (See BILIOUS CHOLERA.)

CHOLESTERINE, *ko-les'-te-rin*, is a crystalline fatty matter found in the bile, nerves, brain, and blood, and forming almost the entire substance of gall-stones. It is tasteless and inodorous, insoluble in water, but soluble in alcohol and ether. It consists of $C_{26}H_{52}O$. According to Dr. Flint, of New York, cholesterin is a product of the destructive assimilation of the nervous tissue, being absorbed from the substance of the brain and nerves by the blood, and eliminated by the liver.

CHONDRUS, *kon'-drus*, in Botany, a genus of *Algæ*. The most important species is *C. crispus*, commonly called carrageen, or Irish moss, which is used medicinally for its nutritive, emollient, and demulcent properties, being administered in the form of a decoction or jelly.

C. mamillosus, which has similar properties, is always found in the car-rageen moss kept at the stores.

CHORDEE. (See GONORRŒA.)

CHOREA. (See SAINT VITUS'S DANCE.)

CHROMIC ACID, *kro'-mik* (CrO_3). This acid occurs in nature in combination with lead as chrome yellow, and with iron as chrome iron-ore. It is prepared by adding 1 measure of a warm saturated solution of bichromate of potash to $1\frac{1}{2}$ of concentrated sulphuric acid. The acid is added in small portions at a time, the solution being allowed to cool between each addition. Chromic acid crystallizes out, and bisulphate of potash remains in solution. Although chromic acid is one of the most powerful oxidizing agents known, it is easily decomposed by light and organic substances. The most useful of the compounds of chromic acid is the bichromate of potash, which forms fine red tubular crystals, which are anhydrous, and remain unchanged by exposure to the air. Both the chromate and the bichromate are extensively used in dyeing and calico-printing. Chromic acid is a powerful caustic, and is sometimes applied to cancerous and other ulcerations. Its action is slower and more gradual, and it is said to cause much less pain than other similar applications, but it is deeply penetrating in its nature, and requires to be carefully used.

CHRONIC, *kron'-ik* [Gr. *chronos*, time], a term applied in Medicine to such diseases as are of long duration, as contra-distinguished from acute—those that soon terminate either in recovery or death.

CHRONIC BRONCHITIS. (See BRONCHITIS, CHRONIC.)

CHRONIC CATARRH. (See CATARRH, CHRONIC.)

CHRONIC CATARRH OF THE CHEST, OR CHRONIC BRONCHITIS. (See BRONCHITIS, CHRONIC.)

CHRONIC DIARRHŒA. (See DIARRHŒA.)

CHYLE, *kile* [Gr. *chulos*, juice], is the milk-like fluid which is formed by the action of the bile and pancreatic juice upon the chyme in the duodenum, and absorbed by the lacteal vessels. The use of the chyle is to supply the matter from which the blood is formed and the waste of the living organs repaired. (See DIGESTION.)

CHYLOPOETIC, *ki-lo-po-et'-ik*, is a term applied to the viscera which assist in the formation of the chyle.

CHYME, *kime* [Gr. *chumos*, juice], is the ingested mass formed by the action of the stomach upon the food, and which passes from the stomach into the duodenum. (See DIGESTION.)

CICATRIX, *se-ka'-triks* [Gr. for a scar], is the scar or mark left upon the skin or upon an internal organ, at the place where separation of substance, either from violence or ulceration, has been healed.

CICATRIZATION, *sik-a-tre-za'-shun* [Lat. *cicatrigo*, I heal up], is a term applied to the healing or skinning over of an ulcer or broken surface of the skin.

CICER, *si'-ser* [from Gr. *kikus*, strength, in reference to its qualities], a genus of plants belonging to the Nat. order *Leguminosæ*, sub-order *Papilionaceæ*. *C. Arietinum*, a native of the countries around the Mediterranean, produces the edible seeds called chick-peas. These are extensively used as food, either boiled or roasted, and are the most common parched pulse of the East. The herbage affords a nutritious food for cattle.

CICHORIUM. (See CHICORY.)

CIDER, OR CYDER, *si'-dur* [Fr. *cidre*], the expressed and fermented juice of apples. The apples are reduced to a pulp, then placed under a press; the screw is turned slowly and the juice exudes, flowing into a tub; from this it is poured into casks placed in a position where there is a free current of air. The liquor ferments, and the clear cider is drawn off from time to time: this is again racked until it is perfectly clear. Cider requires great care in keeping, being apt to turn sour. It is largely used as a beverage, contains from 5 to 9 per cent. of alcohol, and is therefore intoxicating when largely partaken of. It is largely drunk in some localities exposed to malaria, the *malic acid* it contains being supposed to act as a prevention to ague. Good cider vinegar is useful when sponged over the surface of the body, to allay itching.

CILIUM, *sil'-e-um* [Lat.], is a name given in Anatomy to the eyelid or eyelash, and hence the term *ciliary* is applied to the arteries, glands, etc., belonging to the eyelids. (See EYE.)

CINCHONA, *sin-ko'-na*, the typical genus of the Nat. order *Cinchonaceæ*. The plants of this genus are natives of the intertropical valleys of the Andes, and are found principally on the eastern face of the Córdilleras, growing commonly at heights varying from about 4,000 to nearly 12,000 feet above the level of the sea. The plants are small shrubs or large forest trees, with evergreen leaves, and commonly showy flowers. They appear to require great moisture, and a mean temperature of about 62°. The cultivation of these plants has lately been commenced in India with every prospect of success. The barks of several species and varieties are extensively used in medicine, and are undoubtedly the most valuable drugs known. They are imported into this country under the names of *Cinchona*, *Peruvian*, *Crown*, and *Jesuits'* bark. Over thirty different varieties have been described. The most important are *Loxa*, pale or crown bark; *Calisaya*, or yellow bark; and red bark. These three are official, and are the principal sources of the precious alkaloids *quinia* or *quinine*, *cinchonina* or *cinchonine*, and *quinidia*,

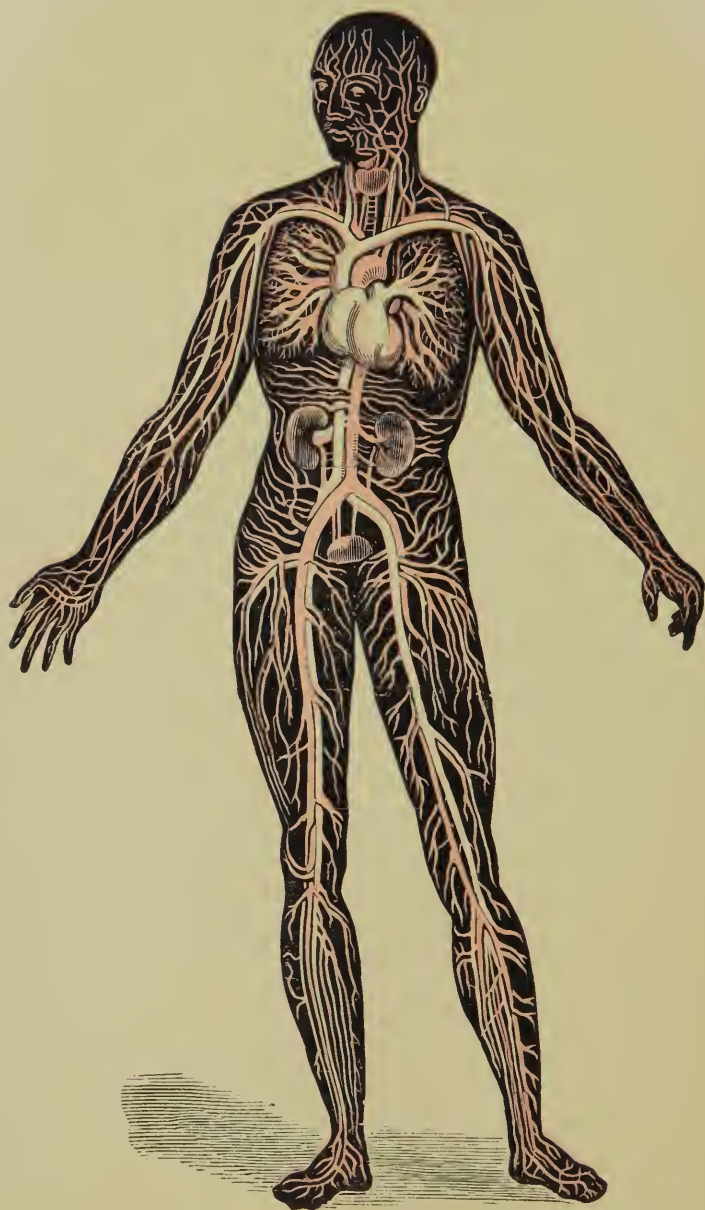
which are all used in Medicine, and possess in an eminent degree tonic, febrifugal, and anti-periodic properties. The barks themselves have similar properties, and are, moreover, slightly astringent. The name cinchona was given to the genus by Linnæus, in compliment to the Countess of Cinchon, whose husband was the viceroy of Peru. She had derived great benefit from the bark during her residence in South America; and on her return to Europe, in 1639, she took with her several specimens. The native names, curiously enough, are very similar to the scientific one, being *qinquino* and *quina-quina*. The medicinal use of the bark was first made known in Europe by the Jesuits, hence the common name Jesuits' bark. Cinchona is tonic, and somewhat astringent, and, topically, antiseptic. It has succeeded well in cases of debility, from exhausting and protracted diseases, and in that languid and prostrate condition of the system prevalent during the heat of spring and summer months, when a general tonic is necessary. It is valuable in functional derangements of the stomach, improving digestion, and invigorating the nervous and muscular systems in diseases of general debility, and in convalescence from exhausting diseases. As a tonic it will be found of advantage in measles, small-pox, scarlet fever, during the absence of fever or inflammation, also in cases when the system is exhausted by purulent discharges. It may likewise be used in all chronic diseases attended with debility, as scrofula, dropsy, obstinate skin diseases, etc. To obtain the anti-periodic influence, the red and yellow barks are considered superior to the pale, while the pale is preferred as a tonic. All the varieties of cinchona are tonic, astringent and anti-periodic, and are, of all medicines of their class, the most powerful and uniform in their action. They owe their astringency to the presence of cincho-tannic and red cinchoric acids. Their tonic and anti-periodic properties are due to the alkaloids, particularly the quinine, in which they abound. Peculiarity in the action of the different kinds of bark depends on the proportions in which the alkaloids are present in them. The powder of cinchona bark is given in doses of 10 to 60 grains, but in general it is better administered in one of the many forms in which it is prepared. The infusion is formed by infusing $\frac{1}{2}$ ounce of the powder for two hours in 10 fluid ounces of boiling distilled or rain water, and then straining; dose, 1 to 2 fluid ounces. Decoction, boil for ten minutes $1\frac{1}{4}$ ounce of the powder in 1 pint of distilled or rain water, strain and add water to make up 1 pint of product; dose, 1 to 2 fluid ounces. Tincture of cinchona, 4 ounces of powder to 1 pint of proof spirit; dose, $\frac{1}{2}$ to 2 teaspoonfuls; dose of the fluid extract of cinchona, $\frac{1}{4}$ to 1 teaspoonful. To be taken three or four times a day. (See QUININE, CINCHONIA, AGUE, ETC.)

CINCHONA COMPOUND, *sin-ko'-na kom'-pound*. Compounded of cinchona, orange peel, gentian, serpentaria, cloves, and red saunders. This combination of tonics has met with the entire approbation of all who have used it, in cases of debility arising from the weakening and exhaustion of the hot season, in dyspepsia, and in that debilitated condition of the system consequent to severe sickness, as well as accompanying chronic complaints. In these cases Nature needs assistance, and only a gentle assistance, that she may bring the system back to its normal state, and give an increased vitality to the functions. In that enfeebled state of the system consequent to old age, a slight tonic stimulant is necessary, and in such cases the best results have followed from the use of the cinchona compound. It is applicable, indeed, to all cases when the cinchona alone would be administered. Dose of fluid extract cinchona compound, $\frac{1}{2}$ to 1 teaspoonful, three or four times a day.

CINCHONIA, OR CINCHONINE, *sin-ko'-ne-a, sin'-ko-nin*, is an alkaloid resembling quinine, but less energetic in its action, found in the different species of cinchona. The muriate and sulphate of cinchonine, as well as cinchonine itself, have of late been much recommended as substitutes for quinine. They have certainly this advantage, that they are much cheaper, but pretty extensive experience of them in hospital practice has not warranted physicians in coming to the conclusion that they are to be considered at all equal to quinine, either as tonics, or as antiperiodic remedies. Some patients complain of low and depressing sensations after taking cinchonine or its salts. There can be no doubt, however, that they are worthy of a more extensive trial than they have yet received at the hands of the medical profession. Quinine is such an expensive remedy, that of course, it would be a great boon to the poor if a cheap substitute equally efficacious could be obtained, and it is far from improbable that some of the preparations of cinchonine may be found, which will take its place. Dose, 5 to 15 grains, three times a day. (See ALKALOIDS, CINCHONA.)

CINERITIOUS, *sin-e-rish'-us* [Lat. *cineritius*, resembling ashes], is a term applied to the exterior substance of the brain on account of its ashy appearance.

CINNAMOMUM, *sin-na-mo'-mum* [Lat.], a genus of plants belonging to the Nat. order *Lauraceæ*, including many species remarkable for their aromatic properties. *C. zeylanicum*, the cinnamon-tree, a native of Ceylon, is extensively cultivated in that island, also on the Malabar coast, in Java and Cayenne, for the sake of the aromatic bark of the young branches, which forms the true cinnamon of commerce. Cinna-



CIRCULATION OF THE BLOOD.
(Heart, Lungs, Arteries and Veins).

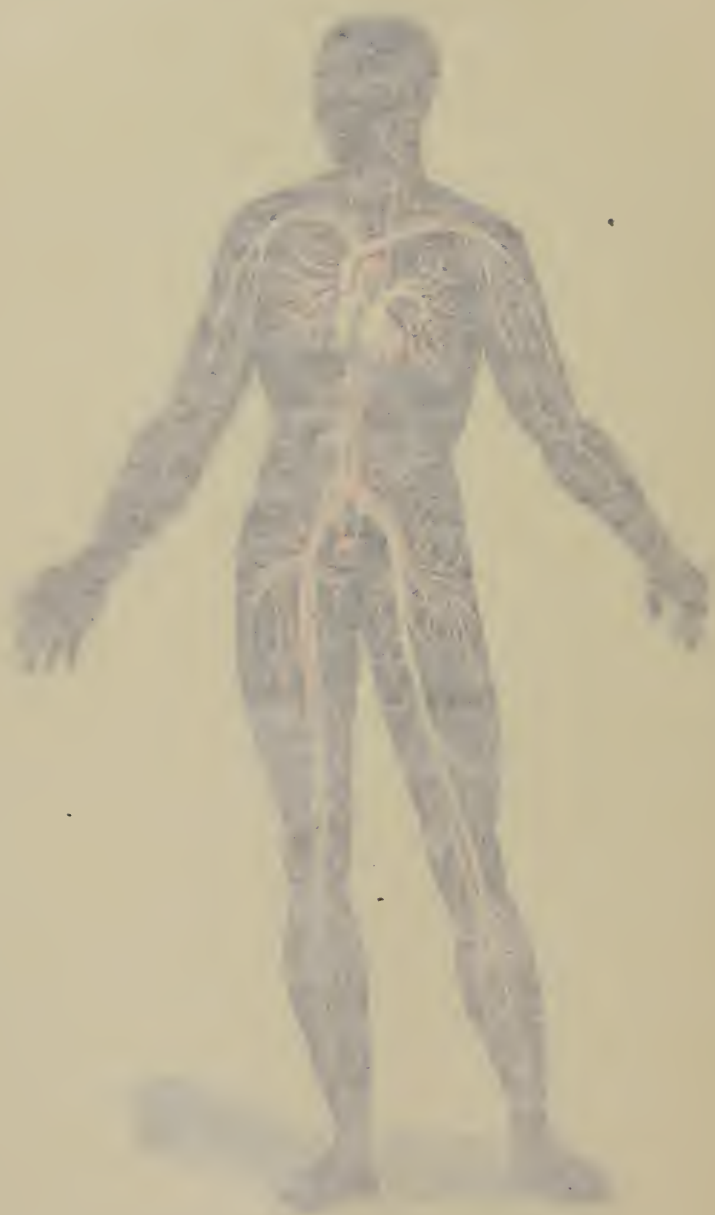


Fig. 1. Musculi humani.

mon is much employed as a spice, and medicinally as a cordial, stimulant, carminative, astringent, antispasmodic agent, and as an adjunct to other medicines. It owes its properties to the presence of a volatile-oil and tannin. The volatile-oil is imported from Ceylon, where it is obtained from the rejected bark by distillation. It is known by the name of oil of cinnamon, and is used medicinally as a stimulant, and by cooks and confectioners for flavoring. Cinnamon water is prepared by taking 20 ounces of the bruised bark with 2 gallons of water and distilling 1 gallon. The tincture of cinnamon is made of $2\frac{1}{2}$ ounces of the bark in coarse powder and 1 pint of proof-spirit, macerated for forty-eight hours, passed through a percolator, and then filtered. Dose, $\frac{1}{2}$ to 2 teaspoonfuls. *C. cassia*, a native of China, yields the cassia bark of commerce, which possesses analogous properties to those of cinnamon. From this bark the fragrant oil of cassia is obtained. The cassia buds of commerce, which are now much used as a condiment, are said to be the flower-buds of this plant. Several other species of cinnamomum yield aromatic barks.

CINNAMON. (See CINNAMOMUM.)

CIRCULATION OF THE BLOOD, *ser-ku-la'-shun* [Lat. *circulus*, a circle], is the course of the blood through the body, from the heart to the capillaries, and from the capillaries back again to the heart. The several organs of circulation are the heart, arteries, veins, and capillaries. By the heart the blood is propelled through the arteries to all parts of the body. The capillaries are very minute vessels, connecting the extremities of the arteries with those of the veins; and by the veins the blood is returned again to the heart. The heart is composed of two distinct cavities, separated from each other by a partition or septum, and termed the right and left sides of the heart; the right being also termed the venous or pulmonic heart, the left the arterial or systemic heart. Each of these sides is subdivided into two cavities, the superior being termed the auricle, the inferior the ventricle. The blood which has been distributed by the arteries through the different parts of the body, passes from them, by means of the capillaries, into the veins. The veins from the lower part of the body empty themselves into the inferior vena cava, and those from the upper part into the superior vena cava, and both pour their contents into the right auricle. This contracts, and forces the blood into the right ventricle, which, in turn, forces it through the pulmonary artery to the lungs, where, by the action of the air, the venous blood is purified and changed into arterial. It is then conveyed by the four pulmonary veins into the left auricle, whence it passes into the left ventricle, from which it is propelled into the aorta, and by this means distributed to all parts of the body. The pulse which is felt in

the arteries is caused by the action of the heart propelling the blood in waves through the body. The discovery of the circulation of the blood is due to Dr. Harvey, afterwards physician to Charles I.; the opinion previous to his time being, that the blood circulated only in the veins, and that the arteries, from being always found empty after death, contained nothing but air; and hence their name. Although the forces which circulate blood, namely, the muscular propelling power of the heart, the muscular and elastic contractility of the arterial coats, and the suction power exerted within the chest, are sufficient of themselves, during health, to maintain the vital current, which flows, and must flow from the first moment of life until death; their power and efficiency is much assisted by the muscular movements of the body, by exercise, which, quickening the respiration and the action of the heart, sends the blood with increased force and frequency throughout the frame, and stimulates every function to increased action. Thus, provision has been made by the Creator, that whilst the powers which circulate the blood can, of themselves, carry on that necessary process sufficiently to preserve life; high health and vigor can only be attained by the active exercise of our limbs. In the aged, and in those exhausted by disease, who are long confined to a horizontal posture, the circulating powers become too feeble to overcome the force of gravity, and the blood tends to accumulate, more particularly in the lungs, in the most dependent part; for this reason, change of posture is advisable. (See ARTERY, VEINS, BLOOD, HEART, RESPIRATION, OXYGEN, CARBONIC ACID, AIR, ETC.)

CISSAMPELOS, *sis-sam'-pel-os* [Gr. *kissos*, ivy; *ampelos*, a vine], a genus of plants belonging to the Nat. order *Menispermaceæ*. The root of *C. Pareira*, a climbing plant indigenous in Brazil, is an article of our Materia Medica, and is commonly known as *Pareira brava*. It possesses bitter, tonic, and diuretic properties, which are chiefly due to the presence of an uncrystallizable alkaloid named *cissampeline* or *pelosine*. Its main use in medicine has been in chronic inflammation, or catarrh of the bladder. Taste at first sweetish and aromatic, afterwards intensely bitter. The decoction is formed of 1½ ounces of the root sliced and boiled for fifteen minutes in a pint of distilled water and afterwards strained. Dose, 1 to 2 fluid ounces. The extract is formed by digesting for twenty-four hours 1 pound of the root in coarse powder with a pint of boiling distilled water, percolating, and adding more boiling water until a gallon of the liquid has passed, then evaporating the liquor until the extract is of a consistence suitable for making pills. Dose, 10 to 20 grains. The liquid extract is formed by adding 3 fluid ounces of rectified spirit to the above. Dose, ½ to 2 teaspoonfuls.

CITRATE OF IRON, *sit'-rat i'-urn* [Lat. *citreum*, the citron], is a

compound of iron and citric acid. It is an elegant and pleasant form, and may be given in solution in water in 2 or 8 grain doses. It becomes moist if exposed to the action of the air. (See IRON.)

CITRATE OF IRON AND STRYCHNIA, *sit'-rat, i'-urn, strik'-ne-a*. This is one of the best of the tonic and strengthening chalybeate preparations. It is very useful in cases of nervous debility, accompanied with uterine derangement; and also in cases of anæmia, or deficiency of blood, with debility, languor, and lowness of spirits. It is a beautiful, sparkling salt, of a rich, purplish brown color. The following prescription may be taken as a good example of the way of administering it; and if it agree, the dose may be doubled with advantage:

Take of Citrate of iron and strychnia.....One scruple.

Chloric ether.....One dram.

Water.....Half a pint.—*Mix.*

2 tablespoonfuls to be taken three times a day.

For those who dislike a sweet taste, the chloric ether may be omitted; and if it be desired to give an acid tonic, 2 drams of dilute nitric acid may be substituted for the chloric ether. It may also be given in the form of pill if required. It has been used in the treatment of paralysis of certain kinds. One hundred grains of the salt contain only one grain of strychnia. Dose, 3 to 5 grains for an adult. (See IRON, STRYCHNIA.)

CITRATE OF MAGNESIA, *sit'-rat, mag-ne'-zhe-a*, a popular and effective medicine when cooling aperients are needed, and in large doses acts as a mild cathartic. The effervescing properties of this elegant preparation are retained in granular form, preserving the flavor as a palatable saline draught. As an aperient or purgative it is pleasant to the taste, unobjectionable to the most delicate organization, mild but certain in its operation, and has a popularity unequalled by any other of its class of medicines. 1 to 2 teaspoonfuls dissolved in 2 fluid ounces of water act as an aperient. Larger doses are required to produce a purgative operation. (See MAGNESIA, CONCRETION.)

CITRATE OF POTASH, *sit'-rat, pot'-ash*. This salt is used medicinally, in the form of the common effervescing saline draught, made with citric acid and carbonate of potash. It is useful in allaying irritability of the stomach and vomiting, and is a slight diaphoretic. Dose, 20 to 60 grains in water. (See POTASH, EFFERVESCENCE.)

CITRATE OF QUININE AND IRON, *sit'-rat, kwe-nine', kwì-nine*, or *qwin'-ine, i'-urn*, is a compound of iron, citric acid, and quinine, and is an elegant and highly useful form of tonic; it may be given in doses of 5 or 10 grains in solution in water. (See IRON, QUININE.)

CITRATE OF SODA, *sit'-rat, so'-da*. A scruple of carbonate of soda, neutralized by a sufficient quantity of lemon-juice, or 10 grains of

citric acid, forms an effervescing draught, which has nearly the same effects as that made with citrate of potash. (See SODA EFFERVESCENCE.)

CITRIC ACID, *sit'-rik as'-id*, is found principally in the lemon, orange, and other members of the *Aurantiaceæ* family. It also occurs in other acid fruits, such as the gooseberry, raspberry, strawberry, and tamarind. It is procured by neutralizing lemon or lime-juice with chalk, and decomposing the insoluble citrate thus formed with sulphuric acid. Citric acid is very soluble in water. It crystallizes in transparent, colorless, rhombic prisms, which have an agreeable acid taste. Combinations of citric acid with iron and ammonia are much used in medicine; and it is also used in the preparation of effervescing draughts. The properties which render lemon-juice a remedy against scurvy are due to the presence of citric acid.

CITRINE OINTMENT, *sit'-rin oint'-ment*, [*Unguentum Citrinum* or *Hydrargyri Nitratis, Ointment of Nitrate of Mercury*], is formed of 4 ounces by weight of mercury dissolved in 12 fluid ounces of nitric acid, and adding 15 ounces of prepared lard, melted in 32 fluid ounces of olive-oil. This is a valuable stimulant application, particularly in chronic inflammation of the eyes, when it is applied to the eyelids. It is also used in various diseases of the skin, as well as to foul and indolent ulcers. In its ordinary form it is too strong; and should be mixed with once or twice its weight in lard. Iron utensils or spatulas must not be used in its manipulation. It is an ointment which very quickly spoils.

CITRUS, *sit'-rus*, [said to be from the town *Citron*, in Judea], in Botany, a genus of plants belonging to the Nat. order *Aurantiaceæ*. The different species and varieties of this genus yield the fruits known under the names of orange, lemon, lime, shaddock, pomпельnouse, forbidden fruit, kumkuat, and citron. The species of *C. Aurantium*, and its varieties, produce all the various descriptions of sweet oranges, the most important of which are the St. Michael's, the blood-red, the Maltese, and the common oranges. *C. Bigaradia*, or *vulgaris*, yields the bitter or Seville orange. By distilling the rind of the ripe sweet orange with water, a fragrant oil, named essential oil of sweet orange, is obtained. The rind itself is used in medicine as an aromatic, stimulant, and tonic. The juice of the fruit forms a refreshing beverage, and in medicine a valuable refrigerant. The bitter orange is chiefly used for making marmalade. Its rind yields a volatile oil called essential oil of bitter orange, and is used medicinally, and for making candied orange peel. *C. Limonum* and its varieties produce the fruits called lemons, the chief varieties of which are the wax-lemon, the imperial lemon, and the Gaeta lemon. Both the rind and juice are employed in medicine, the former as an aromatic and stomachic, and the latter for its refrigerant

and anti-scorbutic effects. The juice contains a large quantity of citric acid, and is extensively used for flavoring, and to form the refreshing beverage called lemonade. The rind contains a large quantity of essential oil, which is obtained from it by expression or by distillation, and is known as the essential oil, or essence of lemon. This oil is principally used as a flavoring agent in confectionery and in medicine, and occasionally in perfumery. *C. Limetta* is the source of the lime. This fruit is generally imported into this country in a preserved state, and in that condition it forms a most agreeable dessert. Its juice is also imported, and largely employed, with that of the lemon, in the preparation of citric acid. *C. medica* yields the fruit called the citron, which is supposed to be the Hebrew *tappuach*, translated in the English version of the Old Testament "apple." The rind of the citron is imported in a preserved state, and is used in confectionery. The pulp is less acid and juicy than that of the lemon. The citron, lime, and lemon, are distinguished from the orange by their adherent rinds, their most lengthened form, and by the occurrence of a more or less prominent protuberance at the apex. (See LEMON, ORANGE, CITRIC ACID.)

CITY AIR. (See AIR.)

CITY HEALTH. (See AIR.)

CLAIRVOYANCE. (See MESMERISM.)

CLARET, *klar'-et* [Fr. *clairet*, from *clair*, clear], a name commonly used in this country, to denote the light red wines of France. *Clairret*, in France, signifies those wines which are red or rose-colored; but the word as used by us to denote every description of light red wine, is unknown in France. Claret is one of the most wholesome of the light wines. It contains 15.10 per cent. of alcohol. In convalescence, from acute fevers, in which wine is admissible, but where there exists tendency to fever from slight causes, claret is most useful, and preferable to the stronger and heavier wines. In diabetes, claret has been recommended as superior to every other form of stimulant. (See WINE.)

CLAVICLE, OR COLLAR-BONE, *klav'-e-kl* [Lat. *clavicula*, from *clavis*, a key], is the bone which extends horizontally from the sternum to the scapula, and serves to keep the shoulders apart, that the arms may enjoy a freer and wider range of motion. It takes its name from its resemblance to the ancient Roman key, and is curved somewhat in the form of an italic *f*. Its sternal end is thick, strong, and expanded, while the acromial end is broad and flattened, and presents an oblong surface, in order to articulate with the acromion process of the scapula. (See ANATOMY, SHOULDER.)

CLAY, *kla*, AS A DRESSING FOR FÆTID SORES.—It is well to know that, when no other substance—such as charcoal—can be obtained, clay

poultices may be applied to sores, the discharge from which is of an offensive nature. The clay must be used only after having been finely powdered, and after all impurities are removed; and it may be employed either alone or mixed with bread, linseed-meal, or the materials commonly used in the making of any ordinary poultice. Dr. Schreber of Leipsic recommends the use of clay as the most "energetic, the most innocent, the most simple, and the most economical of palliative applications to surfaces yielding foul and moist discharges." He moreover considers that it has a specific action in accelerating the cure. Clay softened down in water, and freed from all gritty particles, is laid, layer by layer, over the affected part, to the thickness of about a sixteenth of an inch. If it become dry and fall off, fresh layers are to be applied to the cleansed surface. The irritating secretion is rapidly absorbed by the clay, and contact of air prevented. The cure thus goes on rapidly. This clay ointment has decisive action in cases of fœtid perspiration of the feet or arm-pits. A single layer applied in the morning will destroy all odor for the day. It remains a long time supple, and the pieces which fall off in fine powder produce no inconvenience. Nothing certainly could be more simple than the above method. It may be applied by means of a feather or a camel's hair pencil, care being taken not to put on too much at a time, but rather to apply it in fine layers.

CLEANLINESS. (See ABLUTION, BATHS, SKIN; SKIN, DISEASES OF THE; TEETH, CLOTHING, FLANNEL, HEALTH, SANITARY SCIENCE, ETC.)

CLEAVERS. (See GALIUM APARINE.)

CLEMATIS VIRGINIANA, *klem'-a-tis ver-jin-e-an'-a*, or virgin bower. A climbing perennial plant belonging to the Nat. order *Ranunculaceæ*. It is a native of the United States, growing on river banks, and in moist places from Canada to Georgia. The bark, leaves, and blossoms, are the parts used. When applied to the skin in the pure state they blister, and sometimes are used for purposes of vesication. Used externally in certain cutaneous diseases, and internally it is said to possess diuretic and sudorific properties in a high degree. It is not, however, very much used. Dose: of the solid extract, 1 to 2 grains; infusion, 1 to 2 ounces. (See INFUSION.)

CLERGYMAN'S SORE THROAT, *kler'-je-manz* [*Dysphonia Clericorum*]. This is in some cases a nervous, but in others an inflammatory disease affecting the throat of men who are in the habit of speaking much, and so most frequently met with in clergymen, public speakers, singers, and actors. It consists of inflammation, and relaxation of the mucous membrane lining the back part of the mouth, the soft palate, and fauces; the tonsils are somewhat enlarged, and the uvula elongated. There is an uneasy sensation in the throat, as if something were lodged

there, and the patient is constantly trying to swallow it; the voice is weak, thick, and hoarse, and in some cases scarcely audible. In many cases cough harasses the patient, being attended with expectoration of mucus.

Treatment.—If upon examining the throat we find no signs of inflammation, we should recommend change of air and scene, to the patient, and tonics must be given, as quinine and iron, and the cold shower bath will be found useful.

Take of Sulphate of ironSixteen grains.
Sulphate of quinineTwelve grains.
Dilute sulphuric acid.....One and a half drams.
Compound tincture of lavender.....One dram.
Pure water.....Eight ounces.—*Mix.*

Let 2 tablespoonfuls be taken three times a day.

In some few cases, when other remedies have failed, bichloride of mercury has been successful, and may be given thus :

Take of Bichloride of mercury.....Two grains.
Powdered opium.....Five grains.
Confection of roses.....Two scruples.—*Mix.*

Divide into 16 pills, 1 of which must be taken night and morning.

Liberal diet must be allowed; and the nervous patient should mix freely in society, resting for a short time from his vocal exertions. The organs of voice may be *swabbed* with a solution of nitrate of silver, containing 1 scruple of this salt to 1 ounce of distilled water; for this purpose a camel's hair brush should be used, which is made in the form of a right angle towards its end, and which, by a little careful manipulation, may be gently directed down upon the vocal cords. When the tonsils are inflamed, a warm linseed poultice may be applied to the throat, and the following gargle used:

Take of Dilute sulphuric acid.....Three drams.
Compound tincture of lavender.....Two drams.
Pure water.....Half a pint.—*Mix.*

This gargle to be used frequently. After using this application, the mouth should be freely rinsed out with cold water to prevent the acid exerting an injurious influence upon the teeth. If the tonsils be in a chronic state of inflammation and enlargement, they may be removed by the knife of the surgeon.

CLIMACTERIC, *kli-mak'-ter-ik* [Lat. *climactericus annus*, from *climax*, a ladder or steps], denotes a critical year or period in a man's life, wherein, according to astrologers, there is some notable alteration to happen in the body, and the person will be exposed to great danger of death. The idea of climacterics is very ancient. According to

some, every seventh year of a man's life is a climacteric year, certain important changes then taking place in the body. The ages of sixty-three and eighty-four are regarded as the *grand climacterics*, the changes being then greater, and the danger attending these periods much increased. Others allow the term climacteric only to the product of 7 multiplied by odd numbers, as 3, 5, 7, 9, etc. Some, again, consider every ninth year a climacteric. (See CLIMACTERIC DISEASE.)

CLIMACTERIC DISEASE, *kli-mak'-ter-ik diz-eez'*, is a sudden giving way of the vital powers in persons of advanced life, without any definite disease to account for the change. The affection seldom occurs before fifty years of age, and is more common in men than women, for one reason, probably, that its most frequent exciting cause is over-work and anxiety of the mind in business. The person who is becoming the subject of climacteric disease, complains of weakness coming on gradually, the appetite gives way, sleep is deficient, the bowels sluggish, the pulse quick, and the tongue furred; the flesh falls away, and the altered countenance assumes an aged look in a short period: in other words, the "constitution is breaking up," and the individual's friends remark that "he grows old very fast." Swelling of the limbs, eruptions of the skin, and mental apathy, are further concomitants of the disease, which, if unchecked, may run on to a speedy fatal termination; whilst it also renders the patient liable to sink easily under any attack of acute illness, even of a common cold, which, too, it may be observed, is often the first traceable commencement of the attack of climacteric. Another very frequent cause, is grief caused by the loss of friends or relatives, who have been much mingled in the affections and habits of daily life. When an aged person exhibits the symptoms described above, he should be immediately attended to: the case *must* be put under medical management, and will require tonic treatment, generous living, complete relaxation from the cares and anxiety of business, and, if possible, change of climate. Dr. Day, an English writer, in treating this subject, makes the remarkable statement, that by careful statistics kept of the deaths of nearly fifty-five thousand people, who exceeded sixty years of age, the fact was shown, that the deaths in January were nearly twice as many as in July. The above, with many similar observations, shows the importance of those who have arrived at this stage of life, spending two, three, or more winters in a mild, equable climate. Frequently many years may thus be added to life. Florida is probably the most desirable resort for this class of health-seekers. (See AGE, OLD; DECAY, CLIMACTERIC, HEALTH, LONGEVITY, CLIMATE, ACCLIMATIZATION, HEALTH RESORTS.)

CLIMATE, *kli'-mat*. Climate is derive from the Greek word

klima, signifying inclination, but which was also applied to certain zones on the earth's surface, from their supposed inclination to the pole. In its present and most general acceptance, the word climate may be said to include all those atmospheric conditions and changes that sensibly affect our organs, such as heat, moisture, winds, electricity, etc. It is to the varieties in the climate of different places that we are indebted for the great variety that exists in the vegetable and animal kingdoms. Every species of plant has certain climatic boundaries, some much more extended than others, within which alone it will flourish. Animals, too, have their climatic bounds. To man alone is it given to subsist in any climate. Even him, however, different climates affect very differently—some being favorable to health, others tending to disease. As in the case of plants and animals, it is found that the pathological characters of disease vary with the climate, and that particular diseases have their geographical seats and limits, being regulated in their distribution according to atmospheric temperature and moisture, the density and electricity of the air, the nature of the soil and the character of the vegetation. Each race of mankind has its prescribed salubrious limits, and deteriorates in proportion as it departs therefrom. The study of the effects of different climates upon different constitutions and their curative effects in different diseases, forms an important branch of medicine. By change of climate the patient is exposed to new atmospheric, celestial, and telluric influences, varying in all conceivable varieties and modes of association from those to which he has been accustomed. There are few diseases that may not be influenced by climate; and hence the necessity to the physician of making himself acquainted with the atmospheric conditions of different localities.

The latitude, the elevation, the proximity to, or the distance from the sea; the soil, the absence or presence of water, including the drainage, the amount of wood, and the shelter or otherwise from prevailing winds, all exert important influences upon the characteristic climate of any locality, and have to be considered in the recommendation given, or plan of action resorted to by invalids. The decision respecting the climate, resort to which is likely to benefit each individual case, is so much matter of judgment, and is really so important, that medical opinion ought always to be taken, when change of air or climate is seriously sought as a remedy in illness. Very much precious time is often lost, and real injury inflicted, from want of due care upon this head, and from persons acting upon their own ideas, or upon insufficient advice.

There are few diseases, perhaps, which do not derive either tem-

porary or permanent relief from change of air and climate, but some are more strikingly benefited than others; these are particularly diseases of a neuralgic, intermittent, or spasmodic character, of which whooping-cough and asthma are good examples. Chronic rheumatism, scrofula, weakness of the constitution generally, including pulmonary consumption, and dyspepsia may also be mentioned. As a general rule, benefit appears to result from change to a climate presenting characters which contrast with those of the one in which the individual is or has been generally resident; the dyspeptic or consumptive patient will derive advantage by removing from the colder to the more genial region; the fever-stricken resident of the sultry or vaporous plain, will regain health and strength in the bracing air of the hills, and even the country child, in whose constitution whooping-cough lingers, will probably lose it if transferred to city air for a short period. Perhaps no air exerts such universally tonic effects as that of the sea, but to some it is too stimulating in some particular localities, though not so in others, but, in fact, the differences in climate, and its effects, are so numerous and varied, that it is impossible here to pass beyond the general consideration of the subject. Unquestionably some amount of the beneficial influence of change of climate is due to the stimulant effect upon the mind, which excitement and change of scene produce, this being more particularly the case, if the condition of the individual permits or calls for the continued change of travelling from place to place.

The error is frequently committed, of resorting to the change of climate as a last resource, which, if earlier had recourse to, might have proved of essential or real service. Another error, is trusting too much to the curative power of climate, and invalids, by throwing aside the restraints of the regimen to which they have been previously subjected, and neglecting the other accessory adjuncts to recovery, fail to derive the full measure of benefit which they ought; and this, more especially if they do not consider and endeavor to accommodate themselves to the modes of living, and other requirements, adapted to the climate in which they are resident for the time.

The choice of a climate is a question to the consideration of which too much time and attention cannot be given. There are many points to be thoughtfully and carefully considered, in connection with each individual case—for the change, if not productive of much good, is likely to be fraught with much danger. Some climates have a tonic effect on the system, while others are sedative in their nature; in some cases the atmosphere is exceedingly dry, in others, saturated with moisture. In prescribing change of climate we must, therefore, fully make up our minds as to the requirements of the case. The moist atmosphere that

would be of a decided benefit to the patient with irritable throat and air-passages, would be decidedly injurious to one suffering from gout or rheumatism, and the cold atmosphere that would almost kill a patient suffering from chronic catarrh, would be just the air for a patient suffering from torpidity of the liver. In the search for a desirable change of climate, it is always necessary that we should find one in which there is a comparatively equable temperature—not many degrees difference between the heat of the day and the night—not any very sudden transitions from heat to cold, and the reverse—no high, irregular winds, and especially no malaria, or marsh poison, now known to be the cause of so many diseases, especially fevers of different kinds.

Of the climate of the Eastern Hemisphere little need be said here beyond what may be found in article HEALTH RESORTS, as those possessed of sufficient means to enable them to take so extended a trip, can easily acquaint themselves with the climatic differences by reading some of the very many works that treat of that subject. The Island of Madeira is, in the equability of its temperature, one of the most desirable places known for the consumptive, where the necessary comforts can be obtained. The summer and winter being mild, it is peculiarly suited for the permanent residence of the patient. The climate of the Canary Islands resembles Madeira, but is not quite as equable.

The climate of the United States, owing to its great extent from north to south, its great chains of mountains and its magnificent water-courses, has a very variable climate, or more correctly, is possessed of many climates.

The climate of the New England States is as a rule severe, but comparatively uniform; the winters are long and cold, the summers short and hot; the winds are frequently high and irregular, and near the coast are extremely unfavorable to those suffering from pulmonary complaints. Owing to the almost entire absence of malaria there is not much fever, and comparative freedom from epidemics. The climate of Rhode Island and Connecticut is modified by warm southern winds, but even in Vermont and New Hampshire, the genial summer renders it a most delightful part of the country.

The climate of the Middle States presents many variations. New York, on the whole, is healthy; throat and lung diseases prevail in the east, and bilious complaints in the west. New Jersey possesses a good deal of marsh land, giving rise to malarial fevers. Maryland has neither the extreme cold of the north, nor the excessive heat of the south, but in the vicinity of the bay and Potomac, where there is much marsh lands, remittent and intermittent fevers prevail. The Atlantic States north of Florida, especially near the coast, owing to the sudden changes,

and the damp and oftentimes cold easterly winds, are extremely unfavorable to consumptive and rheumatic patients.

In the Southern States a great portion, owing to immense tracts of marsh lands, is unfavorable to invalids. The high, dry lands of South Carolina and Florida, are well adapted for those who could not stand the cold, moist winds of the northern Atlantic States, nor the severe dry cold of the northwest. The climate of Southern Florida is perhaps the most equable on the continent, and is the most frequently visited by invalids, many thousands going each year. Southern Texas has been highly recommended by some, and the climate at times is very propitious for those with weak lungs, having very much the same temperature as some parts of Florida, but the sudden advent of those terrible winds known as "northers," renders it not at all a safe climate for sufferers from bronchial affections. The climate of Arkansas has a good reputation for the relief of pulmonary disease, being sheltered from the north winds and the fierce heat of the south. The Hot Springs of this State, so famed for their health-giving influence, will be mentioned under the articles MINERAL WATERS and HEALTH RESORTS.

Of the Northwestern States, Minnesota is famed for the salubrious character of its winters, and notwithstanding the severe cold, that State is annually visited by many suffering from pulmonary and rheumatic trouble, who, after a residence of some time, go away wonderfully relieved. St. Paul has long been noted as a health resort.

The climate of Wisconsin is similar in many respects to Minnesota. The winters are long and severe, but, as a general rule, uniform. The temperature is very much modified by the moisture from the lakes, which form so much of the eastern and northern boundaries of the State. The summers are beautifully mild, though the springs are backward, and the southern and central portions are dotted all over with health resorts, which are visited with benefit by parties from all parts of the Union.

Colorado. Perhaps a more favorable region still for consumptives, is the elevated State of Colorado, with its pure bracing air and its complete freedom from all miasmatic diseases. Asthma, catarrh, bronchitis, and consumption, if not too far advanced, are almost invariably cured. It has numerous mineral springs, which combine with its bracing climate and mountain parks, to render it a great national sanitarium.

The climate of California is twofold; that of the sea-coast, and that of the interior; that of the former, owing to the dense volumes of cold mist which pour in from the ocean, contrasts very unfavorably with the dry salubrious atmosphere of the interior. Except in the north, there is scarcely any winter; the sea-breeze, which tempers the drought of

summer in the beautiful Californian valleys, also moderates the severity of the winter. After Colorado, these middle and Southern counties of the Golden State are admirably adapted for a resort for the weak-lunged invalids of the Atlantic States and the Canadian Provinces. (See CONSUMPTION.)

Western and Middle Oregon are noted for their mild, equable, and healthy climate.

The climate of the Dominion of Canada is somewhat variable. In the eastern provinces it is very similar to that of the Northeastern States; the winters are long and severe, the summers hot but very pleasant. High, irregular winds frequently prevail, making the climate undesirable for consumptives and rheumatics. The climate of the Province of Quebec resembles Northern New York, and that of Ontario is similar to Western New York. In Manitoba and the Valley of the Saskatchewan, the snow falls early and in great abundance, continuing to a late date in the spring, the thermometer falling many degrees below zero; but the summers, though short, are beautiful, and the air is not unfavorable, even to those with weak lungs and irritable air-passages. The climate of British Columbia is comparatively mild, resembling very much that of Oregon, and in some respects that of California.

In resorting to change of climate for the restoration of health, care must be taken that the journey be made by easy stages, in pleasant company, and by the least monotonous route. The night air, if possible, should be avoided, and the meals be as regularly partaken of as at home. The first few days after arrival, the patient need not be surprised if he should suffer some headache, or a slight attack of diarrhœa, with some slight febrile excitement. Absolute rest, low diet, and mild saline laxatives, will speedily bring amendment. Particular attention must be paid to the clothing, so as to conform as much as possible to the requirements of the particular region; it will be safe, however, always to wear flannel next to the skin. (See HEALTH RESORTS, MINERAL WATERS, ACCLIMATIZATION, AIR, SEASONS, MADEIRA, CANARIES, ETC.)

CLIMBING BITTER-SWEET. (See CELASTRUS SCANDENS.)

CLINIC, CLINICAL, *klin'-ik*, *klin'-e-kəl* [Gr. *klinikos*, from *kline*, a bed], is applied to the observation and treatment of diseases at the bedside of the sick; and hence clinical lectures are such as are given at the bedside of the patient, or from notes and observations made at the bedside. This is the most valuable mode of instructing in the art of medicine; the students are taken to the bedside of the patients in a public hospital, and there practically instructed in the various phenomena of disease, taught to observe the characteristics of each individual case, and to study the effects of the various modes of treatment. In modern

times at least, clinical medicine was entirely neglected till about the middle of the seventeenth century ; and it was not till the beginning of the eighteenth that it began, by Boerhaave, to be systematically carried out. Since that time it has come into general use, and now every good medical school has an establishment for clinical medicine in connection with it.

CLONIC, *klo'-nik* [Gr. *kloneo*, to move to and fro], a spasm which is not of long duration, though it may be repeated in rapid succession ; such are the spasms which affect the muscles in epilepsy.

CLOTHES, DAMP. (See DAMP.)

CLOTHING, *klothe'-ing*. Health and comfort depend in no small degree upon clothing, particularly in a variable climate like ours. Care should be taken that all articles of dress be worn so as not to press injuriously upon tender parts or to impede the action of important organs. It is particularly necessary to attend to this in regard to children. Further, the clothing should be warm and suited to the season of the year. Children and old people require to be much more warmly clad than such as are in the prime of life. It is a great mistake to clothe children too thinly. In this way the seeds of disease are frequently laid. John Hunter was wont to say that the best receipt for rearing healthy children was “plenty of milk, plenty of sleep, and plenty of flannel.” Even the robust should always wear flannel next the skin ; how essential then, must it be for the delicate, and those who are subject to colds. Flannel worn next the skin should be frequently washed, at least once a week. They should also be changed at night. No garment should be slept in that has been worn during the day, on account of having become impregnated with perspiration, exhalations from the body, dust, etc. Some persons, who from irritability of the skin, cannot wear woolen material next it, find a woven silk texture a good substitute. Shammy vests are sometimes worn with benefit by the weakly, over flannel, and by those subject to rheumatism, next the skin. Drawers of the same material are also useful in rheumatism, sciatica, etc. The form of clothing must ever vary with fashion ; the principle ought always to continue the same, that is, it should involve complete and thorough protection of the surface of the body, and especially of the cavities of the chest and abdomen, from cold or sudden chill. This is best insured by a covering of woolen material next the skin ; the habit should be commenced from the earliest childhood, and continued through life in every season of the year, varying only the thickness of the flannel, or other woolen texture, according to the average temperature. No outward clothing can be so uniformly efficacious as the inner one of wool, as a protection against our variable climate, and yet very many there

are, who, both in their own persons, and in those of their children, neglect this real preservative of health, and therefore, this real economy, although the cost at first may seem much to the poor. In addition to the inner clothing, the outer ought of course to be sufficient, and in winter, an addition made on going from the warmth of the house into the open air. In this respect, men are generally better provided, under all circumstances, than women and children. Women, from the nature of their dress, and from the pernicious custom of exposing the chest and arms—not always, which would be less hurtful—but occasionally, suffer much from errors in clothing; they subject themselves to the extremes of fur and thick shawls in the morning, and of thin dresses at night, added to which there is often exposure to currents of air when heated, and without any protection against their effects. Any article of clothing, such as fur, etc., which keeps up a more than average degree of heat, and even induces perspiration, and which is liable to be thrown off or put on easily and as fancy dictates, is hazardous and injurious. Children are in many cases most insufficiently protected from the weather; numbers are without a single article of woollen underclothing, either in consequence of carelessness, or from the erroneous idea of rendering them hardy; a system which may answer in the offspring of hardy parents, whose children are hardy in every other respect, but which can only be productive of injury to health in those who spend most of their time in warm, perhaps too warm, rooms and nurseries. The surface of a child, from the neck downwards, ought to be kept warm by clothing; exposed chests, bare legs, and thin insufficient coverings, are synonymous with croup, inflammation of the lungs, and scrofula. For the same reason that boas, etc., are unsafe articles of dress for women, comforters and woollen neck-wrappers are not advisable, except under particular circumstances, for boys; they heat the neck, and if thrown off carelessly, predispose to cold or bronchitic affection. The clothing of the feet is a matter of the highest importance to all; dryness and warmth must be attended to by those who value health. Cork soles are a good invention, as they effectually protect the feet from dampness. On the other hand, the head is often, in infants and children especially, kept too hot. (See FLANNEL, CLIMATE, ACCLIMATIZATION, AIR, COLD, DAMP, TIGHT-LACING, CATARRH OR COMMON COLD, RHEUMATISM, ANIMAL HEAT, ETC.)

CLOVER, RED AND WHITE, *klo'-vur*. Red and white clover grow on grass lands all over America. An ointment made from the flowers and leaves, boiled down to an extract, is useful in foul conditioned ulcers.

CLOVES. (See CARYOPHYLLUS.)

CLUB-FOOT, *klub*, is a distortion of the foot, occasioned by the

greater contractions of some muscles than others, by which means the foot is drawn out of its natural position, it may be inwards or outwards, with the elevation of the heel and depression of the toes, or the depression of the heel and elevation of the toes and fore part of the foot. Such deformities are usually congenital, but sometimes they may arise from some disordered state of the system, or be occasioned by convulsions. When recent, it is of importance to ascertain the cause, and to direct attention to its removal. If owing to weakness or irritation, we must strive to strengthen the muscles, and to soothe the nerves. Attention to the general health, properly directed exercise of the part, and, if necessary, special appliances to retain the limb in position, will go far, in most cases, to effect a cure. In cases where these means are ineffectual, a careful subcutaneous division of the contracted tendons rarely fails to effect a cure. (See DEFORMITY.)

CLYSTER, ENEMA, OR INJECTION, *klis'-ter*, *en'-e-ma*, *in-jek'-shun* [Gr. *klyso*, to wash out], are all names for the same useful adjunct to medical treatment, the mechanical injection of fluid into the bowels by the fundament and rectum. Clysters are most commonly employed as aperients, but they are also used as anodynes, or antispasmodics, for the purpose of dispelling wind, or as internal fomentations, or as styptics. In illness they are generally administered to the patient by others, but instruments are constructed to facilitate their self-administration, which is of course preferable when, as frequently occurs, they are often required in ordinary health.

The *mechanical means* used for the administration of clysters are very numerous, the most useful are the injecting syringes of different kinds, procurable in any drug store.

The *injection syringe* is most useful when the clyster to be administered much exceeds half a pint in quantity, when it is used as an aperient, and requires to be forcibly injected. When the clyster does not exceed half a pint, as in the case of children, or when used as an anodyne or styptic, the vulcanized india-rubber bag is quite the most convenient mechanical agent, from its simplicity, and the ease with which any one may use it. When a clyster is administered to the sick, the patient may either be laid on the face or on the left side, near the edge of the bed, with the knees drawn up. The metal or bone pipe which is introduced into the bowel, should be well oiled or greased, and its introduction should be effected with perfect gentleness, not straight up, but in a direction slightly inclined towards the back bone, care being taken that no abrasion or scratching of the parts be occasioned; this is a most necessary caution in all cases, but more especially in those in which repeated use of the remedy will probably be required. Even with the greatest

care, the parts are liable to become sore, causing the patient both to dread and suffer each time the instrument is used, and even to be unable to bear a continuance of the practice. In all cases a clyster should be given slowly and gently, and care taken that air is not thrown up into the bowel as well as fluid; with the syringe, this is to be avoided by pumping it full of fluid before it is applied to the patient, and by not continuing the operation when the fluid used gets so low in the basin as to allow air to be drawn in; with the bag care should be taken that the pipe-end is always held the lowest. When the bag is used, air is less likely to be introduced if the patient is laid on the face. If an instrument has been used for anything but simple water, it ought always to be well washed out with warm water before putting by. When taken to pieces it must always be unscrewed by the hand holding the metal mountings. Clysters self-administered, can only be so conveniently, by means of the syringe.

Aperient clysters may be simply mechanical, of water, gruel, and the like, either cold, tepid, or warm, or they may be medicinal. There is an objection to clysters of simple water, that in some cases they are apt to wash off the natural protecting mucus of the bowel, and therefore it is perhaps better as a general rule, and where the remedy is often or habitually used, to employ a demulcent, such as gruel or barley-water. Cold clysters, sometimes useful, ought never to be resorted to except by medical direction; the fluid about the temperature of 90° will generally be found most appropriate, and when used simply, about a quart thrown up slowly, but with sufficient force, will be found a suitable amount for the generality of adults. Some use a much larger quantity, as much as two or three quarts; this, in certain cases of illness, may be a useful measure, but as a habitual thing is bad; the frequent over-distension with so large a quantity of warm fluid, produces want of tone, which aggravates the torpid tendency of the bowels, and favors fecal accumulation. For a child of six years of age, half a pint of simple gruel clyster is ample. These simple clysters act by stimulating the bowel by their mechanical bulk; when a medicinal clyster is used, the object is in some degree to avoid this, so that the medicinal agent may not be expelled before it has time to exert its peculiar agency. The medicinal clyster ought, therefore, as a general rule, not much to exceed one-half the quantity of the simple one.

The simplest and readiest medicinal clyster is made, either with a tablespoonful of common salt in a pint of gruel, or with a piece of brown soap, the size of a hazel-nut, rubbed down into a pint of warm water; or instead of these, from $\frac{1}{2}$ ounce to 1 ounce of Epsom salts, or 2 ounces of olive-oil, or half that quantity of castor-oil; or infusion of senna, $\frac{1}{2}$

ounce of leaves to the pint, may be employed. Stronger clysters, with turpentine, croton-oil, etc., are also used by medical men.

Anodyne clysters ought always to be so small in bulk—not exceeding 3 fluid ounces—as not to stimulate the bowel to expel them, which, from the nature of the cases in which they are usually given, it is apt to do. In all cases, anodyne clysters are most conveniently administered by means of the vulcanized bag, and the best form is from 15 to 25 drops of laudanum in 3 ounces of moderately thin starch. This clyster is of course to be retained in the bowel if possible. One of the most useful clysters for dispersing flatulence, is made with 2 drams of tincture of assafœtida to $\frac{1}{2}$ pint of gruel, to which, if there is much pain, 10 or 15 drops of laudanum may be added; or the same quantity of assafœtida tincture, may, if required, be added to an aperient clyster. A useful domestic clyster, in the country, for the same purpose, is $\frac{1}{2}$ pint to 1 pint of strong “rue tea,” or infusion of rue.

Clysters used for the purposes of internal fomentation may be given to the amount of 1 quart, and of a temperature of 98° or 100° Fahr.

In hemorrhage from the lower bowel, when it is proper to interfere with it, a 2 or 3 ounce cold styptic clyster may be used, made with sulphate of zinc 4 grains, or sulphate of iron 1 grain, to 1 ounce of fluid. (See SYRINGE, COSTIVENESS.)

COAGULABLE LYMPH, *ko-ag-u-la-bl limf*. The transparent, gelatinous exudation from wounded or inflamed vessels, which becomes organized and serves to repair injuries or produce adhesions. Its peculiar component is fibrine, and it differs from blood only in the absence of red globules.

COAGULATION, *ko-ag-u-la'-shun* [Lat. *coagulatio*], is the conversion of the whole of a fluid, or of some of its constituents, into a solid. The solidification of the white of an egg by heat is an instance of the former, that of the clot in blood, or of the curd in milk, of the latter. The coagulating power of the blood is the great safeguard in bleeding, which could not be permanently stopped by any appliances, without this property of the vital fluid, and it is the loss of this property that gives rise to the occasional cases of danger or death from bleeding, in consequence of comparatively slight wounds, such as those from leech-bites, or from the extraction of a tooth.

COAL-GAS, FIRE-DAMP, *kole'-gas*. Coal-gas, or fire-damp, is a compound of carbon with hydrogen. The fearfully destructive explosions in the coal mines are the result of the ignition of this gas when it has collected in quantity. Its constant use in dwelling-houses, as a means of light, sometimes gives rise to similar accidents, and occasionally life has been endangered by the inhalation of it when it has escaped into an apart-

ment. This has sometimes occurred from persons unused to gas-light, blowing out the flame on going to bed, instead of turning the stop-cock. In such cases, treatment very similar to that pursued in poisoning by carbonic acid may be followed out. (See CARBONIC ACID.)

COAL OIL AND ITS MEDICINAL USES. (See PETROLEUM.)

COAL-TAR, *kole'-tar* [Ang.-Sax. *col tare*]. This is used in several forms as a disinfectant, and also is said to have been applied, in solution, with success in the treatment of itch. The *liquor carbonis detergens*, or concentrated alcoholic solution of the active principles of coal tar, is used as a dressing for putrid sores in the form of emulsion with a little water, and is a favorite remedy with many in skin diseases, especially of a scaly character. Its antiseptic or preservative qualities have made it a favorite with those interested in the collection of specimens of natural history. (See TAR, DISINFECTANTS.)

COBWEB, *kob'-web*, employed as a styptic to arrest bleeding from simple flesh wounds, or from leech-bites. The web of the black spider, which builds in outhouses, etc., has been used with much success, as a medicine in ague, given in doses of 10 grains, in the form of pills, every two hours, commencing six hours before the return of the paroxysm.

COCA LEAVES. (See ERYTHROXYLON COCA.)

COCCULUS INDICUS, *kok'-ku-lus in'-de-kus*, or Indian berry, is the fruit of the *Anamirta paniculata*. It has some resemblance to the bayberry, and is imported into this country from the Eastern archipelago. It is chiefly used for adulterating cheap beer; and it is really wonderful in how many ways it is fitted to disguise a liquor prepared from insufficient quantities of malt and hops; thus, it imparts to the sophisticated liquor an intensely bitter taste, a darkness of color and a fulness of body, while it adds to its inebriating qualities. It is scarcely necessary to state that the cocculus is never employed by respectable brewers. Its use has been forbidden by law. In large doses it is poisonous to all animals, and it has long been used by sportsmen for stupefying fish and game. In medicine it has been employed in the form of an ointment as an external remedy for certain skin diseases. It owes its active properties to a very poisonous crystalline alkaloid called picrotoxine.

COCCYX, OR OS COCCYGIS, *kok'-siks* [Gr. *kokkos*, a cuckoo], in Anatomy, is the name given to the lower end of the spine, from its supposed resemblance to a cuckoo's beak. (See SPINE.)

COCHINEAL, *kotsh'-e-neel*, an insect which yields the well-known coloring matter carmine, is brought from Mexico, being gathered from various species of cacti, on which it feeds. It is used chiefly as a coloring agent, but has been employed, especially as a domestic remedy, in whooping-cough. Its powers are very doubtful. Tincture of cochineal

is formed by macerating for seven days in a close vessel, $2\frac{1}{2}$ ounces of the powder in one pint of proof spirit, and then straining and filtering. Dose of the tincture, $\frac{1}{2}$ to 1 teaspoonful every three or four hours.

COCHLEA. (See EAR.)

COCKLEBURR. (See AGRIMONY.)

COCKSCOMB, RED. (See AMARANTH.)

COCK-UP-HAT. (See STILLINGIA SYLVATICA.)

COCOA, CHOCOLATE, *ko'-ko*, *tshok'-o-lat*. Cocoa is prepared from the seeds or beans of a tree—the *Theobroma Cacao*—cultivated chiefly in the West Indies and South America. The beans are roasted to develop the aroma and free them from the husks, which are comparatively innutritious, though frequently mixed up with the prepared cocoas of commerce. Cocoa, when genuine and properly prepared, is a wholesome and nutritious article of diet; it contains a considerable quantity of oily or fatty matter, starch, etc., and a peculiar principle, “theobromine,” which, according to Liebig, nearly approaches theine and caffeine—the characteristic principles of tea and coffee—in composition; cocoa does not, however, affect the nervous system in the same manner as these beverages, and may therefore be taken in cases when they are inadmissible. Cocoa, as a beverage, ought to be prepared only from the crushed beans themselves, or “nibs,” as they are called, for there is no certainty as regards the purity of the various artificial preparations sold under the names of “flake,” “rock,” “granulated,” “homœopathic” cocoa, etc. In recent investigations these often puffed-off compounds have been found to be made up of cocoa, sugar, starch, or flour, husks of the cocoa bean, etc., and sometimes with fats and oils of various kinds, and earthy and coloring matters.

Chocolate is professedly a manufactured article, and should be made with the kernels of the cocoa bean, perfectly free from husks, and reduced to a smooth uniform paste with sugar, and starch of some kind, such as arrowroot; vanilla or cinnamon being used to impart flavor. Such a preparation as chocolate is of course liable to many adulterations, of which the most deleterious are those with ochre, red lead, vermillion, sulphate of lime, chalk, etc.; tallow is sometimes used in the preparation of the cheap forms. It need scarcely be said that those who make use of chocolate ought always to procure it from dealers on whom they can depend. That of French make is generally to be preferred. As an article of diet, chocolate is extremely nutritious, but on account of the oil it contains, is apt to disagree with weak stomachs, particularly if too great heat be used in preparing; moreover, the addition of vanilla is apt still more to increase its indigestibility, and, according to Dr. Paris, to occasion nervous disorder. (See COFFEE, TEA, BREAKFAST.)

COCOA-NUT. (See Cocos.)

COCOS, *ko'-koze* [Gr. *kokkos*, a kernel], a genus of palms. *C. nucifera*, the cocoa or cocoa-nut palm, is perhaps the most useful member of that great family, which may be said to yield flour, sugar, oil, wax, wine, thread, utensils, timber for habitations, and leaves for thatching. Sugar, called *jaggery*, is largely obtained from the juice, which flows out when its spathes and spadix are injured. Toddy and areca are produced by the fermentation of this juice. The albumen of the seeds (cocoa-nuts) and the liquid within this (cocoa-nut milk) are important articles of food in many tropical regions. The cocoa-nut is also largely consumed in this country. It cannot be recommended for family eating, as it is very indigestible, being rendered so by its oily nature, and solidity of structure. From the albumen, or edible portion, the concrete oil known as cocoa-nut oil, or cocoa-nut butter, is obtained.

COCUM. (See PHYTOLACCA DECANDRA.)

CODEIA, *ko-de'-a*, one of the active principles of opium, and has been used in the form of lozenge for the purpose of allaying irritating cough in cases in which it was not thought desirable to produce the full and characteristic effects of opium itself upon the constitution. It is well known that some persons cannot take opium in any shape without unpleasant effects, and it is to such persons that the above lozenges may prove valuable as a means of soothing a cough that has resisted other more simple methods of cure. Dose, $\frac{1}{4}$ of a grain gradually increased to 2 grains. (See OPIUM.)

COD-LIVER OIL, *kod'-liv-ur oil* [*Oleum Morrhue*], is extracted from the fresh liver of the cod, by the application of a heat not exceeding 180°. There are various modes of extracting the oil. That recommended is to select the best livers fresh, clean and slice them, and then expose them to the above heat until all the oil is drained from them, which is then filtered and cooled to a temperature under 50°, so as to congeal the more solid fat. There are three kinds of oil, the pale-yellow, pale-brown, and dark-brown, the last being the least pure. In addition to the usual components of fish oils, it appears to contain a compound of acetic acid with glycerine, various constituents of the bile, and minute portions of iodine, bromine, and phosphorus. It was formerly employed as medicine in England, fell into disuse, was revived as a remedy in Germany, and again brought into public notice in Britain, by Dr. Hughes Bennett, of Edinburgh, in 1841, since which time it has advanced rapidly and deservedly in the estimation both of the profession and of the public in Europe, the United States, and Canada. It had never, however, been entirely abandoned as a domestic remedy in rheumatism, and among the sailors, particularly those connected with

the northern fisheries, had been regularly used both internally and externally, in the above disease. Now, however, it is principally employed and celebrated for its curative powers, especially in pulmonary consumption, in scrofula, and in all diseases connected with the scrofulous constitution, or depending on general debility. In the atrophy or wasting of the flesh in young children, connected with enlarged glands in the belly, which is tumid and hard, feels knotty, and with the veins of the surface enlarged, cod-liver oil, given internally, 1 teaspoonful twice a day, and well rubbed into the skin of the belly two or three times a day, will in many cases cure, in a way which no other remedy we are acquainted with could do.

For some time, the dark, heavy, strong oil was considered to be the most efficacious; but now, especially since more care has been bestowed on the manufacture, the purer and lighter oil, of the color of light mahogany, is as good as any that can be used. The dose for an adult is generally 1 tablespoonful twice or three times a day; it is, however, by some given much more largely. It is always advisable at first, to begin with smaller, such as teaspoonful doses, till the patient and the stomach become accustomed to the remedy, which even children quickly do, although sickness at the stomach is sometimes produced at first. Tastes differ much as to the best method of taking cod-liver oil; the dose may be shaken up with half the quantity of syrup of marsh mallow, and swallowed at once, or it may be taken in water, simple or aromatic.

The following form of administration will suit some persons who cannot take the oil otherwise: Rub down 2 ounces of loaf-sugar, in a quart mortar, to fine powder, add the yolk of an egg, and blend thoroughly with the sugar, adding 3 drops of oil of cinnamon; add 2 ounces of cod-liver oil by small quantities, and rub with above till thoroughly incorporated; finally add, still rubbing, 1 ounce of orange-flower water. The dose—1 tablespoonful thrice daily, before meals. It is said that shaking the oil with cherry laurel-water is a good method of correcting its smell and taste; of course, the laurel-water is separated before taking the oil. With many, cod-liver oil acts slightly upon the bowels. In some cases of chest affection, the breathing is certainly apt to become more difficult for the first few days of its use, and it has been said to induce spitting of blood. There cannot be stronger evidence of the nutritious power of cod-liver oil, than the way in which its omission is felt, by patients who have taken it regularly for some time, neither wine nor anything else appears to be a sufficient substitute. Dose, 1 tablespoonful or more, two or three times a day. (See CONSUMPTION, SCROFULA, ATROPHY, ETC.)

COFFEA, *kof-fe'-a*, [Sp. and Fr. *café*], a genus of plants belonging to the Nat. order *Cinchonaceæ*. The species *C. arabica* is the

coffee-plant, or *quhwa* of the Arabs, the seeds of which, when roasted and ground, are used to furnish the daily and most cherished drink of probably more than a hundred millions of human beings. The plant is said to be a native of Arabia Felix and Southern Abyssinia; but it has been carried to various countries within the tropics, and, at the present time, is cultivated wherever the climate is suitable. In some countries it seldom attains a greater height than eight or ten feet; but in others, its average height, when full grown, is from fifteen to twenty feet. Coffee owes its valuable properties chiefly to the presence of an alkaloid called *caffeine*, and a volatile oil. It is remarkable that tea should contain precisely the same principle, *theine* and *caffeine* being identical. The sensible properties and effects of coffee, like those of tea, are too well known to require to be stated in detail. It exhilarates, arouses, and keeps awake; it counteracts the stupor occasioned by disease, by fatigue, or by opium; it allays hunger to a certain extent; gives to the weary increased strength and vigor, and imparts a feeling of comfort and repose. As an article of diet, coffee is for most persons wholesome and stimulating, but when there exists any tendency to head affection, or when the biliary secretion is apt to be over-abundant, it ought not to be used. Dr. Paris remarks, that coffee, "if taken after a meal, is not found to cause that disturbance in its digestion, which has been noticed as the occasional consequence of tea; that on the contrary, it accelerates the operations of the stomach;" when strong, it most undoubtedly exerts much influence over the brain and nervous system, producing watchfulness and feverish symptoms; it is thought, too, to affect the skin, and the sallow hue of the Parisians has been ascribed to the excessive use of coffee. The nutrient power of coffee is considered greater than that of tea, although this cannot be great in either, irrespective of the characteristic principles theine and caffeine—above-mentioned, which, probably, are peculiarly beneficial to those who, either from necessity or inclination, consume much non-azotized, or vegetable food. In such individuals, who are often of sedentary habits, a deficient consumption of animal diet, and inactivity together, render the biliary secretion deficient, and these principles of tea and coffee are, according to Liebig, "in virtue of their composition, better adapted" to supply the—otherwise deficient—"biliary azotized principles, than all other nitrogenized vegetable principles." Coffee is more suitable, for most persons, for the morning meal, than tea, which is more likely to affect the nervous functions. A cup of strong coffee taken immediately after rising, is considered a good protective from the effects of malaria. In poisoning by opium, coffee is one of the most useful antidotes, but in this case ought to be fresh, pure, and strong, and taken without milk or

sugar. The infusion of 1 ounce taken every twenty minutes is considered a suitable dose. Coffee should always be infused, never boiled; when made with half milk, it is more nutritious for the weak, if it agrees with the stomach in this form. The adulterations of coffee are numerous; for that with chicory which is the most prevalent, the reader is referred to the article CHICORY. Roasted wheat flour, and beans, mangel-wurzel, acorns, potato-flour, and a "coffee colorer" made with coarse burnt sugar, are likewise used. Coffee sold in "air-tight" canisters is always to be suspected. The only real security at present is, for persons to grind their own coffee, not too much at once, and to preserve both the whole berry and the powder in canisters, or wide-mouthed, well-closed bottles. In the West Indies, an infusion of raw coffee is used by the negroes, and found serviceable in promoting the flow of urine. A few coffee-beans thrown upon a red-hot shovel are an effective, and not unpleasant, corrective of unpleasant effluvia. A strong infusion of coffee has been well spoken of as a useful auxiliary in the reduction of strangulated rupture. (See RUPTURE, BREAKFAST, DINNER, FOOD, DIET, TEA, DRINKS.)

COFFEE. (See COFFEA.)

COHOSH, BLACK. (See BLACK COHOSH.)

COHOSH, BLUE. (See BLUE COHOSH.)

COLCHICUM, *kol'-ke-kum* [after *Colchis*, its native country], a genus of plants belonging to the Nat. order *Melanthaceæ*. The most important species is *C. autumnale*, the common meadow-saffron, a perennial, growing in abundance in many parts of Europe. It blossoms during the months of August and September, its flowers being crocus-like, and of a purple color. This plant offers a strange contrast to most others in the mode of producing flowers and fruit. The flowers appear during the autumnal months named, rising from the ground without any leaves; and, when they fade, nothing further is seen of the plant until the following spring, when tufts of leaves make their appearance, enclosing the seed-vessel or capsule, which ripens about hay-harvest. Both the seeds and corms of this plant are employed medicinally. They stimulate the secretions, acting as a cathartic, diuretic, alterative, emetic, and sedative. Used in rheumatism, gout, dropsy, palpitation of the heart, scarlet fever, gonorrhœa, enlarged prostate, and in neuralgia. In improper doses colchicum acts as a narcotico-acrid poison. The symptoms produced by an overdose of colchicum are, vomiting, purging, colic, heat in the throat and abdomen, general depression, headache, and stupor or delirium. The remedies to be used until medical assistance is procured are, diluents, such as barley-water, linseed tea, or thin gruel, and laudanum or opium in some form. The

once celebrated French nostrum for gout, called *Eau medecinale d'Husson*, owes its properties to colchicum. The corins are collected about the end of June, stripped of their coats, sliced transversely, and dried at a temperature not exceeding 150°. Dose: in powder, 2 to 8 grains; tincture, 10 to 30 drops; wine, 10 drops to $\frac{1}{2}$ a teaspoonful; fluid extract, 3 to 12 drops; solid extract, $\frac{1}{2}$ to 2 grains. To be taken every four to six hours.

COLD, *kolde*, is generally considered to be a negative result of the absence of heat, rather than an active principle; in consequence, however, of its energetic influence upon the living body, either in health or disease, it is usually spoken of as an active agent. The animated human frame is endowed with the power of maintaining a certain average temperature, which—except in rare instances—is higher than that of the surrounding medium, and this power is adequate to resist all ordinary impressions of cold; but when, from great intensity, or long continuance, and especially when combined with moisture, the depressing action of cold is much augmented, the powers of life sink, and disease or death is the consequence. This power of the living body to resist cold is in a great measure dependent upon the supply and proper assimilation of a sufficiency of nourishment; the ill-fed and the dyspeptic always suffer most from the effects of cold. But in order that full benefit may be derived from the power of food to protect against low temperature, particularly when at all severe or long-continued, it is requisite that more or less muscular exercise—according to circumstances—be engaged in, for the purpose of quickening the functions of respiration, circulation, and metamorphosis of tissue; in other words, for the purpose of increasing the supply of oxygen taken into the system, and thereby facilitating the consumption of internal fuel (see ANIMAL HEAT) either obtained directly from the food, or from the compounds carbon and hydrogen already existing in the body. This is no more than common experience testifies; for all know, that of two men exposed to a continued degree of intense cold, even if equal in other respects, should one persevere in muscular exertion, and the other give way to indolence or torpor, the former will be much more likely to survive the effects than the latter. And even under exposure to cold, not so immediately dangerous to life, and especially if combined with moisture, the most ignorant are aware that “as long as they keep moving,” there is comparatively little danger of those bad consequences, which almost invariably result if rest is indulged in. In fact, as long as the muscular movement is kept up, the circulation, respiration, and change of tissue goes on with sufficient activity to maintain temperature adequate to resist the cold, which, however, prevails, as soon as inactivity permits the cessation of the resisting forces.

Thus we have a point of every day experience confirmed, and its rationale explained, by the researches of modern science.

In northern latitudes, however, the internal means of resisting cold are of themselves insufficient for the purpose, and therefore, clothing, shelter, or habitations, and the production of artificial heat, are resorted to, and these, indeed, in some degree stand in the place of nourishment; for the man who is sufficiently well protected from the effects of cold, certainly requires a less supply of food to maintain health than he who is not. As regards food, habitations, and fuel, most people who have it in their power, are inclined to use their protecting influences sufficiently; it is in clothing that the chief errors and negligences are met with, and the reader is referred to that subject for their exposition. (See *CLOTHING*.) There may be such over-precaution in guarding against cold, that it is impossible to keep up the protection on all occasions, so that an accidental omission in dress, or exposure, after being habituated to air of too high a temperature, at once gives rise to disease; but the abuse is no argument for the non-employment of sufficient rational protection against the influences of weather, especially in northern latitudes in which a low temperature frequently prevails, and that, too, combined with moisture, whilst at the same time, the vicissitudes from heat to cold are often extreme and violent. It may safely be asserted, that a large proportion of the diseases to which the inhabitants of this country are liable, are, either directly or indirectly, the result of cold. It is sufficient to mention inflammatory attacks, general and local, apoplexy and paralysis, rheumatism and neuralgia, scrofula with its long train of disease, and consumption, as diseases, among many others, traceable to the influences of low temperature, to convince the most careless of the necessity of due protection against an agent so potent for evil. In many warm climates, the principal danger from cold is incurred by exposure to the chill dews of evening, after hot days.

The effect of extremely low temperature acting upon a limited portion of the body, is rigidity of the muscles, blistering of the skin, particularly from grasping metallic bodies with the bare hand, and frost-bite or death of the part affected. The general effect of extreme continued cold, is depression of the nervous system, of the functions of the respiratory organs and skin, deterioration of the blood, torpor, insuperable drowsiness, and death. In case of frost-bite, as of the fingers or toes, although the part may appear quite lifeless, pale and shrivelled, it may often be saved by proper treatment, and the principal thing to be attended to is, that the temperature be not suddenly raised; circulation, nervous power, and heat, must be very gradually restored, and probably the method followed in countries in which this accident is common, will

be found safest and best, that is, continued friction of the part affected, with snow, till reaction is established, at all events friction should be used; after inflammation may be soothed by tepid poultices.

When in consequence of long exposure to extreme cold, drowsiness comes on, both mind and body must be exerted to keep off the influence; to indulge it, is death; muscular motion must be kept up; if the individual is alone, and has a supply of alcoholic stimulant, brandy or wine, it ought to be resorted to when it is felt that otherwise the powers must give way; then, it may give strength to reach safety and shelter, but the greatest caution is requisite, before those who are exposed to severe continued cold have recourse to these stimulants; as a last resource they are invaluable, but their aid must be unsought as long as possible, for if resorted to too soon, the after depression adds fatal facility to the further depressing power of a low temperature. Experience proves, that those who are likely to be exposed to great continued cold, should provide abundant nourishment, particularly of a fat or oily character; they should never be without a flask of spirits, but never have recourse to it, except as a last resource. The sudden application of cold, even if it be not intense, may be very serious, in case the nervous powers are at all exhausted; of this, the cramp to which bathers are subject is an example, and likewise the fatal accidents so frequent during harvest, from persons drinking largely of cold water. The fatal effect is usually ascribed to the heated state of the body, but much is also due to the shock communicated to the stomach and its numerous nervous connexions, while the system generally is exhausted. The effect of cold, not extreme, but long-continued, especially if combined with moisture, is one of the most fertile sources of diseases, some of which have been already enumerated. The young and the aged are more peculiarly liable to suffer, and for this reason require especial protection. The partial application of cold, particularly by a moving current of air, most generally produces disease of a neuralgic or rheumatic character, partial paralysis, especially of the face, or erysipelas. All these injurious influences are more readily exerted, if the body is at the time in a state of heated excitement, combined with nervous exhaustion the result of previous exertion, and at rest.

The partial application of cold and wet may produce inflammatory action in the immediate vicinity of the part exposed, or as in the case of wet feet, in some distant organ.

The most effectual remedy for the effects of "chill," is warmth with moisture, in the form of bath, vapor or warm, or of hot bran bags, and the free use of warm diluent drinks, such as tea, gruel, etc., and in case of much depression, warm wine and water.

The use of cold as a hygienic agent, or in the treatment of disease, is invaluable. When, either as cold air or cold water, it is adapted in intensity and continuance, to the resisting power of the constitution, it is a most admirable tonic. When used to subdue certain forms of excited and inflammatory action, the temperature must of course be suited to the case, but ice-cold is most generally useful, care being taken, in the application of ice itself, that the part is not, as has happened, actually frozen or killed. Various forms of evaporating lotions, made with spirits, etc., are employed, but as the additions are made simply to increase the cold by increasing the evaporation, if a sufficient supply of sufficiently cold water can be procured, it is all that is requisite; the best mode of application is by cloths dipped in the cold fluid, and renewed again and again by a careful nurse. When, from circumstances, this cannot be done, the next best method is, to keep up a continued system of irrigation, by means of a vessel of cold water placed a little higher than the part to be cooled, the fluid being conducted from the vessel to the part by bundles of woolen thread, or thin strips of flannel, care being taken, by means of waterproof material of some kind placed underneath, to carry off the superfluous water; in this way, the head, or a broken limb, may be kept constantly under the influence of a stream of cold water, without the necessity for constant attendance. Extreme cold, such as is produced by a mixture of equal parts of salts and pounded ice, may be used with safety to cause temporary loss of sensation in minor operations. The plan is one which might frequently supersede the employment of chloroform. In the removal of small tumors, the extraction of ingrowing toe-nails, the introduction of setons, and such like, the author has reason to speak most favorably of the practice. To Dr. James Arnott is due the credit of being the chief promoter of "Congelation as an Anæsthetic," not only in operations, but also to allay the pain and promote the cure of neuralgia. (See BATHS, AFFUSION, HEAT, ICE, CLIMATE, SEASONS, EXERCISE, CIRCULATION, RESPIRATION, CATARRH OR COMMON COLD, INFLAMMATION, RHEUMATISM, APOPLEXY, PARALYSIS, NEURALGIA, SCROFULA, CONSUMPTION.)

COLD BATH. (See BATHS AND BATHING.)

COLD CREAM, *kolde kreme*, is a white ointment, commonly used as a lip salve, and as a healing application to chapped or abraded surfaces generally. It is made in various ways, but commonly by melting together 1 pound of almond-oil and 4 ounces of white wax, pouring them into a warm mortar, and adding, by degrees, 1 pint of rose-water.

COLD FEET, *kolde feet*. This may seem a trifling affair, but no one, a child especially, can be well, and constantly have cold feet. It is a very common beginning of consumption, and often ushers in sore

throat, croup, diphtheria, scarlet fever, and bronchitis (which see). Children should not be put off in this matter with a simple injunction to go to the fire and warm them, but immediate steps should be taken by proper clothing, warm bathing, and thorough friction to remove the difficulty. A state of health cannot long be maintained unless the feet are comfortably warm all the time.

COLD IN THE HEAD (See CATARRH OR COMMON COLD, SNUFFLES.)

COLD ON THE BREAST, OR IN THE CHEST. (See BRONCHITIS, PNEUMONIA.)

COLDS. (See CATARRH OR COMMON COLD; SNUFFLES; CATARRH, CHRONIC; COUGH; INFLUENZA; BRONCHITIS, ACUTE; BRONCHITIS, CHRONIC; PNEUMONIA.)

COLD WATER. (See WATER, BATHS AND BATHING, HYDROPATHY, AFFUSION.)

COLD WET-SHEET, OR THE WET-SHEET BATH. (See BATHS AND BATHING.)

COLIC, *kol'-ik* [Gr. *kolon*, the colon], is a painful spasmodic contraction of the muscular fibres of the bowels, particularly of the colon.

Causes.—It is caused by the presence of an undue amount of wind, or of some irritating matter, such as accumulated fæces, undigested food, acrid bile—when it is termed “bilious colic,” overdoses of strong purgatives, or poison; it may also be brought on by exposure to cold.

Symptoms.—The pain of colic comes on and goes off suddenly, is of a rolling or twisting character, is referred chiefly to the umbilical or navel region, and is relieved by pressure; there may or may not be vomiting. In some cases of colic, the spasmodic contraction of the bowel is so complete and permanent, that inverted action takes place, and the fæcal contents are vomited; to this form, the name of ileus, or iliac passion, has been given. The above symptoms distinguish colic from inflammation, the pain of which is of a more persistent burning character, and is aggravated rather than relieved by pressure; in the latter case, too, febrile symptoms are present from the commencement. The distinction is, of course, requisite for active medical treatment, but many remedies, which may be used safely and effectually to relieve the one, will also be beneficial in the other, and, indeed, in other spasmodic or inflammatory attacks within the abdomen, which might be mistaken for colic. (See ENTERITIS, PERITONITIS.)

Treatment.—The sudden accession of an attack of colic, its peculiarly painful character, and the danger, that if continued, it may pass on to one of inflammation, renders immediate relief imperative. The first remedy is heat, either locally to the abdomen by bran bags or similar applications, as hot as they can be borne, or by the hot bath of the

temperature of 100°, if not undesirable on other accounts. The use of heat if promptly and effectually carried out, will often of itself relieve the attack at once, particularly if it is the result of cold, but even should it do so, it will be well to give a dose of castor-oil, or rhubarb and magnesia, to insure the freedom of the bowels from irritating matter; a few drops of laudanum being added to either medicine should the spasm show a tendency to return. Should the pain not be relieved by the employment of external heat, as recommended, a warm injection, temperature 102°, should be administered, and a cup of tea or of some unstimulating fluid, taken as hot as it can be swallowed. If the pain still remains, 10 drops of laudanum must now be given, and repeated every quarter of an hour, until relief is obtained, or until 40 drops, or even more, have been administered. If the case is violent, an injection containing 20 drops of laudanum may be given. These means, if thoroughly carried out, will scarcely fail to afford relief until the arrival of medical assistance, which should always be procured, if the case is at all severe or continued; it may depend on causes which a medical man alone can discover or remove. Alcoholic stimulants are scarcely to be recommended for use in non-medical hands, not because they are not serviceable in colic, but because, should the case be mistaken, and prove one of inflammation, they would prove most injurious, which the remedies above prescribed could not. Still, in a case in which no doubt could exist, a tablespoonful of undiluted tincture of rhubarb, or a glass of hot brandy and water, with or without laudanum, are either of them good remedies.

Painter's colic, or dry bellyache, is a disease to which persons are subject who work much among lead; it is said also to be occasioned by new cider, etc. It is severe colic, accompanied with obstinate constipation. The disease, either in itself or from concomitant constitutional affection, may prove fatal, and should always be treated by a medical man if possible. The treatment is much the same as that for common colic as far as allaying pain goes, but the obstinate constipation which accompanies it, requires the laudanum and other means to be combined with active purgatives, castor-oil, senna, compound colocynth pill, etc. Alum has been strongly recommended as a remedy in painter's colic. Much might be done by those engaged in employments connected with lead, to avoid, not only this, but other bad effects, by due attention to cleanliness, particularly of the hands at meal times. The use of lemonade, acidulated slightly with sulphuric acid in water, would probably be additional protection. Lead colic has been induced in whole families, by the use of water, which acted strongly upon leaden pipes or cisterns. It should be remembered that this affection may arise from the gradual

introduction of lead into the system by means little suspected. A case has been narrated to the author, where one person was fatally affected, and another nearly so, by the long-continued and profuse use of snuff, which was imported, and kept for a considerable time in coverings made of thin sheet-lead. Many are unaware that a very pure water is more dangerous when conveyed through lead, than one which contains a tolerable amount of saline impregnation. Those who have once suffered from an attack of colic should pay particular attention to the bowels. A pill composed of 1 grain of extract of henbane, with 2 of compound colocynth and rhubarb pill, will be found a most valuable aperient. (See ALUM, LEAD, SULPHURIC ACID, GREGORY'S POWDER, DIOSCOREA VILLOSA.)

COLIC ROOT. (See DIOSCOREA VILLOSA.)

COLLAPSE, *kol-laps'* [Lat. *collapsus*, from *collabor*, I shrink down,] is a wasting or shrinking of the body, or of a part of it, or a sudden and extreme depression of its strength and energies.

COLLAR-BONE. (See CLAVICLE.)

COLLEGE. (See SCHOOL.)

COLLIERS, DISEASES OF, *kol'-yurz*. Miners, as a class, are short-lived and unhealthy, breaking down prematurely from a variety of diseases, but principally from those engendered by the circumstances under which their work is carried on. Light and fresh air are both essential to health; and if many have sufficient difficulty in preserving vigor "with all appliances and means to boot," what must be the disadvantage under which the collier labors when deprived of both essentials? Robert Stephenson thought that 100 cubic feet of air per man per minute would not be enough. This includes, of course, all the air wanted in the mine for horses, lights, etc. Miners suffer much from the inhalation of particles of carbon, coal, charcoal, or dust in the pursuit of their occupation. These being swallowed, produce dyspepsia, or still worse, and, as is more frequently the case, being inhaled, and becoming lodged in the lungs and air-passages, give rise to bronchitis and inflammation of the lungs, and to a peculiar disease now well known as "miners' lung," in which innumerable atoms of charcoal are incorporated with the substance of the lung itself, the epithelium of which has actually grown over them. The collier also suffers much from the damp, and from the constrained position in which he is often obliged to work for whole days together. The grand remedy is efficient ventilation of the mines, which is at once a preventive of the sudden explosions and of the continued deterioration of health to which colliers are ever subjected. In addition, it is of great importance that employers should endeavor by all means in their power to elevate the moral and social character of those who, being debarred from the employments and enjoy-

ments of open day, are too apt in times of recreation still further to enfeeble their health by debauchery and excess of all kinds.

COLLINSONIA CANADENSIS, *kol-lin-so'-ne-q kan-a-den'-sis*, a perennial plant belonging to the Nat. order *Lamiaceæ*. It is found growing in rich, moist woods, from Canada to Florida, and is known in different parts of the country as stone-root, horse-weed, hardhack, and knot-grass. It is tonic, astringent, diaphoretic, and diuretic, and has been found beneficial in chronic catarrh of the bladder, whites, gravel, and dropsy. As a stimulant it has been employed in colic, headache, cramp, etc. The root is the part used in medicine. Dose: of the infusion, $\frac{1}{2}$ to 2 fluid ounces; fluid extract, 20 to 60 drops, every three or four hours. (See INFUSION.)

COLLIQUATIVE, *kol-lik'-wa-tiv*, a term applied to any profuse exhausting evacuation, more particularly the diarrhoea and perspirations of pulmonary consumption.

COLLODION, *kol-lo'-de-un* [From Gr. *kolla*, glue], is made by dissolving 2 scruples, or 40 grains of gun cotton, in 3 ounces of ether, and 1 ounce of rectified spirit. It is a very useful application to cuts, small wounds, and abrasions, chapped hands, or chapped nipples, etc. It should be gently applied by means of a hair pencil. The ether evaporates, and a thin layer of cotton is left as a covering, which is not removed by washing in water. Collodion may also be applied to leech-bites, or small wounds of any kind, to stop the bleeding, which it does, owing to the contraction of the film of cotton constricting the vessel of the bleeding part.

A mixture of 2 parts of glycerine, to 100 of collodion, makes an excellent protective application to chilblains, burns, bed-sores, etc. It has also been applied as a protective covering in many cases of disease of the skin, accompanied by great pain, itching, or irritability. It forms a good covering for pills, the unpleasant taste of which it conceals, without in any way interfering with their action.

One of the best known ways of applying a liquid blister, is to paint the surface of the skin over with collodion, in which cantharides or cantharidin, the active principles of the fly blister is dissolved. It may be applied with a brush directly, which saves the trouble of spreading a blister, and vesication is as quickly produced as with the ordinary plaster, while it is much less bulky, and more convenient in every way for general use.

Collodion is a very good application to small cuts after they have been strapped or stitched up, when it is desirable to exclude the air, and to let them heal, if possible, by what is called "the first intention." It causes a little smarting for a few seconds, but this soon passes off, and a pellicle is left which forms an admirable protective covering for the

wound, and allows the healing process to go on below undisturbed. Collodion is best kept in a stoppered bottle, the stopper of which may be fitted with a camel's hair pencil, to allow of its ready application. (See WOUNDS, BRUISES, ETC.)

COLLYRIUM, *kol-lir'-e-um* [Gr. *kollurion*], was formerly applied to any medicament employed to restrain defluxions; but it is now confined to topical remedies for disorders of the eyes—an eye-salve, or eye-wash. Collyria are of various kinds; stimulating, as weak solutions of sulphate of zinc or copper; astringent, as alum, or tannin; sedative, as warm or tepid lotions, containing opium, henbane, or belladonna; escharotic, as nitrate of silver in solution. (See EYE, DISEASES OF THE.)

COLOCYNTH, *kol'-o-sinth* [Gr. *kolokunthis*], the bitter cucumber or bitter apple, a well known drastic hydragogue cathartic. It is the fruit of the *Citrullus colocynthus*, a plant belonging to the Nat. order *Cucurbitaceæ*, and supposed to be the “wild vine” of the Old Testament. The seeds possess the purgative property to a slight extent; but the pulp is by far the most active part of the fruit. In large doses, colocynth is an irritant poison. It owes its properties to a peculiar bitter principle, which has been named *colocynthin*. The pulp is light, spongy, white or yellowish-white in color, without odor, but intensely bitter in taste. It is employed in passive dropsy, in cerebral derangements, and for the purposes of overcoming torpid conditions of the biliary and digestive system. Its irritant effect upon the rectum may influence the uterus by sympathy of contiguity, and thus provoke menstruation. It may be used in moderate doses in all diseases where cathartics are indicated. The addition of extract of *hyoscyamus* will deprive it of its harsh and griping effect. Dose, of powder, 2 to 8 grains. The compound extract is formed by macerating, for four days, 6 ounces of the pulp in 1 gallon of proof spirit, pressing out the tincture, and distilling off the spirit; then adding 12 ounces socotrine aloes, 4 ounces of resin of scammony, 3 ounces of hard soap, in powder, and evaporating until of a consistence for making pills, adding 1 ounce of cardamom seeds; dose, 3 to 10 grains. The compound pill is made by mixing 1 ounce of the pulp, in powder, 2 ounces each of Barbadoes aloes and scammony, in powder, $\frac{1}{4}$ ounce of sulphate of potash, in powder, with 2 fluid drams of oil of cloves, adding a sufficient quantity of distilled water to form a mass of the proper consistence; dose, 5 to 10 grains. The *C. and Hyoscyamus pill* is made of 2 ounces of compound pill of C., and 1 ounce of extract of *hyoscyamus*; dose, 5 to 10 grains; dose of the fluid extract of colocynth, 5 to 15 drops.

COLOMBO. (See CALUMBA.)

COLON, *ko'-lon* [Gr. *kolon*, a member, or limb], in Anatomy, is the

largest of the intestines, or, rather, the largest division of the intestinal canal. This canal is divided into the small and great intestines, the former consisting of the duodenum, jejunum, and ileum; the latter of the cæcum, colon, and rectum. The great intestine commences in the right iliac fossa, in a dilatation of considerable size, called the cæcum. The colon ascends through the right lumbar and hypochondriac regions, to the under surface of the liver; passes transversely across the abdomen, on the confines of the epigastric and umbilical regions, to the left hypochondriac region; descends through the left lumbar region to the left iliac fossa, where it becomes convoluted, and forms the sigmoid flexure, from which the rectum extends to the anus. It is thus divided into four parts—the ascending, transverse, descending, and the sigmoid flexure. The colon, in man, averages from 4 to 5 feet in length, and about 2 inches in diameter, being about a fourth part as long, and twice as wide, as the small intestine. The canal is not smooth and uniform, as in the small intestine, but bulges out between the bands of muscular fibre into various prominences, more or less regular in their form, in which the fæces lodge for a time, and become deprived of much of their moisture as they are rolled onwards by the peristaltic action to the rectum and anus. The colon is enveloped in the serous membrane called the peritoneum, which forms the external covering of all the abdominal viscera. (See INTESTINES, ALIMENTARY CANAL, ABDOMEN, ETC.)

COLOR. (See COMPLEXION.)

COLORADO, CLIMATE OF. (See CLIMATE.)

COLOR BLINDNESS, *kul'-lur blind'-nes* [Lat. *color*, and Ang.-Sax. *blindnes*]. It was discovered by the late Dr. George Wilson, the distinguished Professor of Technology, in the University of Edinburgh, that this is a much more common affection than is generally supposed. He proved conclusively from his experiments that a large number of persons were unable to distinguish the different colors, and also, that these same persons were quite unaware of the fact themselves. It follows that railway companies should be exceedingly careful with regard to this particular in the selection of their employes, as it is easy to suppose how accidents might arise from the wrong interpretation of signals. A remarkable form of temporary color blindness is produced by the administration of santonine, for long, round worms. Patients taking this drug complain that they see everything colored green or red, and they are often afraid that the condition may continue, whereas it always ceases when the medicine is left off for a few days. It colors the urine of a deep citron yellow tinge, and this is at once changed to a brilliant scarlet on adding a few drops of solution of caustic potash to it, hence we may easily understand how the tissue of the eye may be acted upon

to cause the above-mentioned effects. Santonine has even been tried as a remedy in some cases of blindness, but without much success as yet.

In some cases, color blindness is complete, and in others it only exists to a slight degree. The following table of Dr. Wilson's will show how frequent this defect is:

1 in 55	confound red with green.
1 in 60	“ brown “
1 in 46	“ blue “

Hence, one in every 17·9 persons is color blind. Most persons will be surprised to learn from the above table what a large proportion of people are unable to distinguish colors; but it is not after all so astonishing when we reflect how many people have peculiarities as to their other senses of taste, smell, touch, and hearing. Dalton, the celebrated chemist, was color blind, and hence the affection is often called “Daltonism.” (See BLINDNESS.)

COLORED CONFECTIONERY. (See CONFECTIONERY.)

COLOSTRUM, *ko-loš'-trum* [Lat.] A name given to the first milk secreted in the breasts after childbirth. It has been a general belief, that this early milk is purgative, and destined to carry off the meconium; an opinion which rests on no sufficient evidence, and is probably erroneous.

COLTSFOOT. (Sée TUSSILAGO FARFARA.)

COLUMBA. (See CALUMBA.)

COMA, *ko'-ma* [Gr. *koma*, from *keo*, I lie down], is used to denote a diseased condition of the brain, manifesting itself in a state of insensibility resembling sleep, from which the patient cannot be aroused, or only in a very partial degree. Coma may result from congestion or hemorrhage in the brain, or from any abnormal pressure on that organ; from the agency of narcotic poisons or alcohol; from exhaustion arising from the loss of blood, or from the action on the blood of various morbid products generated within the system. Slight coma differs but little from profound sleep; but in complete coma the patient is entirely shut off from the external world, and is quite dead to all external impressions. Medical writers distinguish several varieties of coma, the chief of which are the *coma vigil* and the *coma somnolentum*. The former is characterized by a constant disposition to sleep, without falling into a quiet, sound, or natural slumber, accompanied by delirium, muttering, and agitation; the latter is marked by profound sleep, without the power of awakening spontaneously, and, if roused, almost immediately sinking into the same state. Any of the forms of coma may come on suddenly, and terminate speedily in death; or it may come on gradually, and be of short duration; sense and voluntary motion as slowly returning.

When its accession is slow, it often commences with drowsiness or headache. The causes and characteristics being so various, its treatment must also necessarily vary: generally, the object is by means of stimulants and counter-irritants to arouse the patient to consciousness. (See APOPLEXY.)

COMFREY. (See SYMPHYTUM OFFICINALE).

COMMON COLD. (See CATARRH OR COMMON COLD.)

COMMON COLD OF INFANTS. (See SNUFFLES.)

COMMON ELDER. (See SAMBUCUS CANADENSIS.)

COMPLEXION, *kom-plek'-shun* [Lat. *complexio*], the hue of the face. Much information may frequently be obtained of the existing constitutional condition, by observation of the complexion; but in judging, it is requisite to consider the original temperament, and the family descent of the individual. In fair races, such as the Anglo-Saxon, a certain amount of color is usually associated with our ideas of health, and in some respects truly so; the reverse, a perfectly pallid face, can scarcely be consistent with a sound bodily condition. But color may be too high at all times, and the capillary vessels of the face, partaking of the fulness of those of the body generally, may indicate that from some cause, such as overfeeding, or indolence, combined with good digestive powers, the system of the individual is too full of blood; for the color is not confined to the parts naturally tinged, but it is diffused over the face generally, and even the white of the eye is covered with distended vessels. Such a state is one of danger, it is often accompanied with headaches, giddiness, confusion of thought, sleepiness, and when these occur, apoplexy may be dreaded. A high or brilliant color, also, may accompany the consumptive constitution, but in this it is very generally associated with a fine skin, and often with light or red hair, with freckles, and also with a pearly or bluish appearance of the white of the eye. This appearance of high health is apt to deceive the inexperienced; but the color is generally not equal or persistent, it varies much, being easily heightened by excitement, or depressed by the reverse, and it continues to add beauty even to the last stages of the hectic consumption. In the dark-hair, and dark-complexion, color is less commonly developed. The complexion of disorder or disease is very varied, it may be muddy, pallid, pasty, white, sallow, cachectic, yellowish green, and purple.

The muddy complexion may be the natural one of the skin, but it frequently accompanies dyspeptic ailments, and is directly dependent on depressed nervous power, and languid circulation of blood; it is most strongly marked in the dark depressions underneath the eyes. Whatever lowers or exhausts the nervous power, will produce this complexion, which may be seen in perfection, when the light of morning shines in,

either upon the votaries of a too protracted dance, or upon the weary watcher beside the bed of sickness. Sleep is the best restorer of the exhaustion of nervous power, indicated by this condition of complexion; but if rest is impossible, it is one of those cases in which stimulant, hot tea or coffee first, and then alcoholic stimulant, is requisite. The pallid complexion is often the result of too close confinement to the house, and especially of deficient exposure to diffused daylight—it is well marked in miners. The pasty complexion accompanies the lymphatic constitution, and general laxity of the solids; the subjects of it require a good allowance of animal food, in preference to milk and grain preparations, puddings, etc., of which they are often too fond. They almost invariably derive benefit from preparations of iron. A marked white complexion not natural to the individual, is often indicative of serious disease, probably of the kidneys or heart, and when it appears in persons advanced in life, the cause ought most certainly to be investigated by a medical man. The sallow complexion is very generally a natural one. The cachectic accompanies a diseased state of the system, and often of the abdominal organs—it is muddy, and accompanies emaciation of the features. The yellow complexion may be the bright hue of jaundice, or the muddy yellow associated with malignant disease, especially cancer. In the greenish yellow skin of chlorosis or green sickness, there is also extreme pallor of parts usually colored—such as the lips. A purple complexion is indicative of deficient oxygenation of the blood, either from disease of the heart or lungs; generally of the former. The bronzed complexion is one which of late years has attracted attention among medical men, as indicative of a peculiar disease, called Addison's disease. (See ADDISON'S DISEASE, SKIN, COUNTENANCE, COSMETIC, TEMPERAMENT.)

COMPLICATION, *kom-ple-ka'-shun* [Lat. *complicatio*]. In medical language, any disease or anomalous symptoms which are co-existent with, and modify another disease, without being inseparable from it, is called a complication.

COMPRESS, *kom'-pres*, [Lat. *comprimo*, I press together], is formed of soft linen, lint, or other substance folded together into a sort of pad, and applied to a part where pressure is required. The "wet compress" consists of two or three folds of thin flannel or calico wrung out in cold, tepid, or warm water, and laid upon the part and covered with gutta-percha or oil silk.

COMPRESSION OF THE BRAIN. (See APOPLEXY.)

COMPTONIA ASPLENIFOLIA, *komp-to'-ne-a as-ple-ne-fo'-le-a*, or sweet fern. A shrubby perennial plant belonging to the Nat. order *Myricaceæ*. It grows in thin, sandy soils, or dry, rocky woods, in

the Northern and Middle States. It has a spicy, aromatic odor, and an astringent, bitter taste. Sweet fern is also known by the common names of sweet bush, fern gale and sweet ferry. It is tonic, astringent and alterative, and has been used with success in diarrhœa, dysentery, bleeding of the lungs, the whites, debility succeeding fevers, and in the summer complaint of children. Dose of the infusion, 1 to 4 fluid ounces (see INFUSION); of the fluid extract, 20 to 60 drops; and of the syrup, made by adding 2 ounces of the fluid extract to 14 ounces of sugar, 2 to 4 teaspoonfuls, to be taken three times a day.

CONCRETION, *kon-kre'-shun* [Lat. *concreasco*, to grow together], is a term applied to the unusual aggregation of any substance or substances within the body, most generally to intestinal concretions. Persons who have been in the habit of taking large and repeated doses of magnesia, have not unfrequently suffered from its concretion into hard lumps or balls in the stomach or intestines. Any substance which possesses the power of felting or matting together, is liable to form a concretion in the bowels; one has been found of the ends of thread matted together, which the female had been in the habit of biting off and swallowing when at work; but perhaps the most common cause of the intestinal concretion is the felting of the bran of the oatmeal, as used in Scotland, when too exclusively employed as food, and in too dry a state. Well boiling and diluting, and mingling with other articles of food, particularly of an oily nature, is the best preventive. (See OATMEAL, MAGNESIA, ETC.)

CONCUSSION, *kon-kush'-un* [Lat. *concutio*, to shake together], is applied to a violent commotion or shock communicated to the brain, or the whole nervous system, by collision of the body with some external object.

Symptoms.—In its slightest form a stunning sensation is merely communicated; which passes away in a few minutes; in its severest form, death rapidly ensues. In the severer cases the patient becomes immediately pale and insensible; the breathing sometimes natural, but frequently slow and feeble; the pupil rather contracted; the pulse usually slow and weak, but sometimes natural; the extremities become cold, the secretions are suspended, and there is frequently nausea and vomiting.

Treatment.—In the treatment of concussion great caution is necessary. The patient at first should be kept warm in bed, with bottles of hot water, hot bricks, etc., till consciousness is restored, when wine or other stimulants may be cautiously administered. If he seem to be sinking, stimulants should at once be had recourse to; but so long as he remains stationary, no active means should be employed. Afterwards

bodily rest, and quiet, cessation from all mental occupation, a mild unstimulating diet with gentle bitter aperients, are the means to be adopted in restoring the patient. When there is also extravasation of blood upon the brain the symptoms will take the form of apoplexy. (See APOPLEXY.) The symptoms in the two cases, however, are so similar, that it is frequently a very difficult matter to distinguish them. Severe concussion of the chest affecting the heart, or over the region of the stomach, may prove fatal immediately, or at least produce much alarming faintness and collapse; in the latter case, the use of stimulants, such as ammonia or spirit internally, or stimulant injections, and the dashing of a pitcher of cold water over the chest and face, immediately following it by hot applications, mustard, etc., would be the most appropriate treatment. (See CONCUSSION OF THE BRAIN, ACCIDENTS, SHOCK.)

CONCUSSION OF THE BRAIN, one of the most frequent injuries to which the brain is exposed, is concussion.

Symptoms.—Either in consequence of a fall or a blow, a person becomes stunned; the effect may be but momentary, there is transient unconsciousness, and the individual “comes to himself,” without further symptom; but if the concussion be severe, the state of unconsciousness continues, the power of motion is almost or entirely lost, the breathing is slow and quiet, the pupils frequently contracted, but sometimes dilated, and very generally there is vomiting; the pulse is small and weak. This condition may continue for a longer or shorter period, according to the violence of the shock, and may terminate in death; but if it be simple concussion, there is generally a restoration of the usual condition of health, permanent or otherwise.

Treatment.—In some cases of simple concussion of the brain, but little active interference is required; the patient should, if possible, be put in bed, and the warmth of the surface, particularly of the feet, attended to; if there is extreme depression, a little sal-volatile or brandy and water *may* be given, *but sparingly*, on account of the subsequent reaction. The chief danger to be apprehended after concussion of the brain, is inflammation affecting either the organ itself or its covering membranes, and on this account the sufferer from the accident ought to be extra careful for at least ten days or a fortnight after the receipt of the injury. All alcoholic stimulant is to be avoided, and rest both of body and mind submitted to; the bowels being kept relaxed by the use of gentle aperients. If the immediate reaction is great, that is, if a few hours after the accident, there is much pain in the head, shivering, followed by heat, quickened pulse, vomiting, the case demands the most serious attention, and should be seen by a medical man as soon as

possible. In such a case as this occurring—and they frequently do occur—at a distance from medical aid, an unprofessional person who could bleed would be quite justified in abstracting from a man of full habit, from 12 to 20 ounces of blood, and in applying 12 or 18 leeches about the head, either with or without the general blood-letting; or 8 or 10 ounces of blood might be taken from the nape of the neck by cupping. The hair must be cut or shaved off, and the head kept cool with cold or iced applications; the most perfect quiet in a dark situation, observed, and active purging with calomel and colocynth, jalap and calomel, or the most active aperient at hand. The diet is to be reduced to the very lowest ebb. Such cases are generally so urgent, and their cause and nature so palpable, that they not only require the most active treatment, but also render that treatment justifiable in the hands of the unprofessional, in the absence of, or during a lengthened interval of the non-arrival of medical assistance. Symptoms, similar to those detailed above, though not directly referable to reaction, may, coming on some days after a concussion of the brain, indicate the commencement of inflammatory action. In such a case, bleeding must be more cautiously resorted to, but the other measures should be carried out. It ought to be known, that direct violence to the head is not always requisite to produce concussion; a heavy fall on the feet may equally cause it, by the shock conveyed through the spine to the brain. But violence may go beyond the production of mere concussion—there may be rupture of the substance of the brain, or of a single vessel, causing effusion of blood. In such a case, the individual may never rally from the first condition of unconsciousness, or he may rally only partially, to sink again as reaction comes on into a state of apoplectic stupor, or become the subject of those symptoms of inflammation of the brain already described; in which case, of course, the same treatment is to be pursued. If the case runs on to a fatal termination, there is generally apoplectic stupor, paralysis, convulsions, one or all of them. (See CONCUSSION, SHOCK, ACCIDENTS, BRAIN.)

CONCUSSION OF THE SPINAL CORD. (See SPINE, DISEASES AND INJURIES OF THE.)

CONDIMENTS, *kon'-de-ments* [Lat. *condimentum*; *condio*, to make savory]. Condiments are substances which are not of themselves nourishing, but which are taken along with food as seasoning, and to promote its digestion. Salt is the most extensively used, and also the most wholesome condiment; to civilized man its use is second nature, and very many of the lower animals are not only fond of it, but seek it instinctively as a necessity, and improve in health and appearance when they have access to it. The vegetable acids, vinegar, etc., are useful and wholesome in moderation, particularly with oily food. The aro-

matics and spices, such as cayenne, white or black pepper, ginger, etc., can scarcely be called injurious, if used in moderation, to healthy individuals; in debility of the stomach they are often of service, and they seem especially adapted to counteract the effects of a warm climate upon the digestive organs, and also to the constitution, acquired or otherwise, of the inhabitants. They are, however, generally used along with vegetable productions. (See SALT, VINEGAR, MUSTARD, PIPER NIGRUM, AROMATICS, ETC.)

CONDY'S DISINFECTING FLUID. (See PERMANGANIC ACID.)

CONFECTION, *kon-fek'-shun* [Lat. *conficere*, to make up]. A term applied to medicinal preparations generally made with sugar. The most useful are almond confection, aromatic confection, cassia, rose and senna confections. Of these, the aromatic confection is the most us generally used preparation. It is thus made:

Take of Cinnamon.....	Two ounces.
Nutmeg	Two ounces.
Saffron	Two ounces.
Cloves.....	One ounce.
Cardamoms	Half an ounce.
Prepared chalk.....	Sixteen ounces.— <i>Mix.</i>

Reduce these materials when dry, to a fine powder, and keep in a close vessel. Sugar to the extent of six ounces, may or may not be added to the preparation.

CONFECTIONERY, *kon-fek'-shun-er-e*, literally, “things made up,” or candies, sweetmeats, sweet-cakes, etc. They are not necessarily unwholesome, if used in moderation, but should, as a rule, be avoided by those of weak digestive powers. Cakes and sweetmeats are too often deleterious, if made with much butter, when made of bad materials, or mingled with poisonous ingredients. Baked confectionery, in which the butter or grease is rendered empyreumatic and acrid by the heat employed in its preparation, is always liable to disagree, and especially so when, as often happens, bad materials are made up and disguised with flavors of various kinds, which are often in themselves unwholesome, particularly those so largely used, such as the oil of bitter almond, peach kernel, and laurel flavoring, which are actual poisons, when taken even in not very large quantity. Another flavoring ingredient, recently introduced, but already largely used, called “jargonelle pear,” is not devoid of danger, and has been known to produce dangerous head symptoms in a child. It is made from the fusel oil obtained in distillation from grain, potatoes, etc. But perhaps the most numerous cases of injury have arisen from colored confectionery and sweetmeats, a large proportion of which are tinged with deleterious substances; the greens with arsenite of copper or Scheele's green, verdigris, or a

mixture of chrome and Prussian blue; the yellows by chromate of lead; the reds by vermillion, a compound of mercury, or by oxide of iron; and the whites by carbonate of lead, oxide or carbonate of zinc, chalk, or sulphate of baryta. The frosting of cakes, and the white sugar comfits, often contain a large per-centage of plaster of Paris. These facts ought to be sufficient to make people very cautious in the use of such articles, particularly with children; and in case of sudden unaccountable illnesses, they should not forget the possibility of such causes. The color of a sweetmeat would afford some clue to the nature of the poison, and reference to the article POISONS AND THEIR ANTIDOTES, will show the measures proper to be adopted, in the interval of procuring medical assistance. (See PASTRY, ETC.)

CONFECTIONERY, COLORED. (See CONFECTIONERY.)

CONGESTION, *con-jest'-yun* [Lat. *congestio*, from *congero*, I amass], is a term employed to denote an unnatural accumulation of blood in the capillary vessels of any part, accompanied with disordered functions of the organ in which such accumulation takes place. The organs most liable to congestion are the brain, lungs, and liver; but other parts are also subject to it. It is usual to distinguish two kinds of congestion—a passive and an active. In passive or simple congestion there is merely an accumulation of blood arising from distention and diminished vital energy in the capillaries; in active congestion, on the other hand, the blood-vessels are in a state of inordinate activity, and a preternatural quantity of blood is determined to them. Anything may be the cause of congestion which diminishes the vital energy of the capillaries or which increases the quantity of blood which they contain. (See INFLAMMATION.)

CONGESTION OF THE BRAIN. (See CONGESTION.)

CONGESTION OF THE LIVER. (See CONGESTION.)

CONGESTION OF THE LUNGS. (See CONGESTION.)

CONGRESS WATER. (See MINERAL WATERS.)

CONIUM, *ko'-ne-um*, a genus of plants belonging to the Nat. order *Umbelliferae*. The most important species is *C. maculatum*, spotted hemlock, or poison hemlock, a European plant, which is extensively employed in medicine to relieve pain, relax spasm, and compose general nervous irritation. It is also used as an alterative and deobstruent in glandular and other swellings. It owes its properties chiefly to the presence of a colorless oily liquid, with a penetrating mouse-like odor, to which the name of *Conia* has been given. In improper doses, hemlock is a powerful poison, and many fatal accidents have arisen from its having been mistaken for harmless umbelliferous plants. It is used to promote sleep, and will be found efficacious in

allaying excessive action of the heart. All affections attended with an excited or excitable condition of the nervous or vascular systems, will be benefited by its use. It is highly recommended in chronic rheumatism, secondary syphilis, in scrofulous tumors, and ulcers. Fothergill strongly recommends this drug in the treatment of neuralgia and rheumatism. It has been used with decided advantage in gonorrhœa, in various diseases of the skin, in the complicated derangements of health attendant upon secondary syphilis, in excessive secretion of milk, whooping-cough, menorrhagia, asthma, chronic catarrh, and consumption, and in various other disorders connected with a general depraved state of the health. Conium, unquestionably, proves useful in the treatment of cancer, mitigating pain, checking the progress of the disease, and sometimes effecting a radical and permanent cure. The less malignant may, with safety, be said to be under its control. Dr. Waring says the internal and external application of this medicine is attended with excellent effects in syphilitic ulcerations. Henlock poultice is formed by mixing 1 ounce of the leaf in powder, and 3 ounces of linseed-meal, and gradually adding them to 10 fluid ounces of boiling water constantly stirred. The tincture is formed from the dried ripe fruit, bruised and macerated, $2\frac{1}{2}$ ounces in 1 pint of proof spirit for 48 hours in a closed vessel, then percolated and filtered. Dose: 20 to 60 drops; fluid extract, 5 to 20 drops. Vinegar is recommended as an antidote. The stomach to be properly evacuated before administering it. (See POISONS AND THEIR ANTIDOTES.)

CONJUNCTIVA, *kon-junk'-te-va* [Lat. *conjungo*, to unite], is the membrane which lines the eyelids, and is folded from them upon the fore part of the eyeball, which it covers, extending over both the white and the clear portion, or cornea. In its ordinary healthy condition, the conjunctiva is a transparent membrane, with perhaps one or two tortuous vessels seen upon it. (See EYE.)

CONSTIPATION. (See COSTIVENESS.)

CONSTITUTION, *kon-ste-tu'-shun* [Lat. *constituo*, to dispose]. The general condition of the body, as evinced by the peculiarities in the performance of its various functions: such are the peculiar predisposition to certain diseases, or liability of certain organs to disease; the varieties in digestion, in muscular power and motion, in sleep, in the appetite, etc. Some marked peculiarities of constitution are observed to be accompanied with certain external characters, such as a particular color and texture of the skin and of the hair, and also with a peculiarity of form and disposition of mind; all of which have been observed from the earliest time, and divided into classes. (See TEMPERAMENT, COMPLEXION.)

CONSTITUTION, BREAKING OF. (See CLIMACTERIC DISEASE.)

CONSTRUCTOR MUSCLES, *kon-strik'-tur mus'-slz*, those muscles which contract any opening of the body.

CONSULTATION, *kon-sul-ta'-shun* [Lat. *consultatio*], a meeting of physicians in any case of disease.

CONSUMPTION, PHTHISIS PULMONALIS, OR PULMONARY CONSUMPTION, *kon-sum'-shun, ti'-sis* [Lat. *consumo*, to waste away], as its name implies, is a disease of the lungs, or at least one in which the lungs are more prominently affected than any other organ. Its fatality and frequency render it but too familiar, as year by year it numbers for its victims the young, the good, and the fairest in the land.

Consumption is a portion only of a constitutional malady, which very frequently develops its intensity in the organs of respiration, but may do so in other modes, and in other organs of the body. Its constitutional nature requires to be impressed upon the mind of the people in general; for regarded only as a disease of the lungs, alarm is not taken, nor are remedies generally resorted to, until its effects upon these organs become manifest, the antecedent period, in which the constitution is giving way, is overlooked, and that time is lost in which the first indications of disease might have been successfully attended to.

Causes.—The causes of pulmonary consumption are all those which occasion debility generally, not excepting the most frequent of all, hereditary predisposition, that tendency to the disease which exists so strongly in some families, that no care or precaution can ward it off, nor prevent it seizing in succession member after member of a household. Fortunately, this intensity of hereditary transmission is not so very frequent, but there are few families in this country in which the tendency does not more or less exist; there are few which cannot number amid their deceased relatives some victim of consumption. With a susceptibility so widely diffused, it becomes a serious consideration with all by what this tendency is encouraged, and how it may be diminished. The first consideration that presents is marriage. There can be no question, that from errors in the contraction of this great engagement of life, much of the hereditary tendency to consumption is developed, and especially when the union is between parties nearly related by blood; doubly so if the predisposition already exists in the family. Delicacy of either parent, particularly of the father, is very apt to entail consumptive tendencies upon the children; and the same follows if the parents are either too young, or if the father be advanced in life. The mistake is a very common one, that marriage and child-bearing act as a check upon the progress of consumption, and the step is often advised, even to the comparatively young, with this view. The error is a serious one;

nothing can be more trying even to a healthy female, in this country, than having a family before the constitution is formed; and most certainly it is so to the weak. It is true, apparent temporary amendment of consumptive symptoms sometimes occurs, but the powers of life are sapped by the too early call on their exertions.

In the management of the children of even the most healthy parents, doubly so of those who are the reverse, much may be done either to weaken or to fortify the constitution, to pull down the one to the level of the scrofulous diathesis, which ripens into consumption, or to infuse into the other such strength and vigor that it may resist during a long life any development of the disease. For information respecting the management of children, the reader is referred to the article itself. (See CHILDREN.)

As the period of puberty approaches, care is required with all, but doubly so in the case of those who have displayed any scrofulous or consumptive tendency. The development of the body which is going on, requires a full supply of the most nutritious food, animal food particularly. The secretions should, if possible, be kept in healthy activity, and, more especially, all sources of exhaustion most strictly avoided; youths especially must be warned against the evil of prolonged physical exertion; and not less so against the mental efforts, which those, especially, who partake of the nervous and excitable constitution of the hereditary consumptive, are apt to give way to in competitions at school or college.

At any period of life, mental anxiety or over-exertion, intemperance, or dissipation, *the habitual breathing of vitiated air*, low, damp situation, insufficient clothing, and exposure to the weather, or peculiarity of employment, particularly that which necessitates the inhalation of irritating matters, or any continued drain upon the powers of the constitution, such as suckling, may any of them develop or induce consumption. We can here only take a hasty glance at those circumstances of life which seem to endanger a *predisposition* to consumption. Foremost among these must be ranked poverty; for, though this disease attacks all ranks and conditions of men, the cause now stated is admitted by all to play an important part. (See POVERTY.) Poverty, however, seldom, if ever, occurs alone; exposure, anxiety, bad nourishment, and the inhalation of an impure or confined atmosphere, accompany it; and, while the single influence of each cannot be correctly calculated, the potency of their combined operation it is impossible to overestimate. Lombard informs us that in Geneva the proportion of deaths from consumption among those living upon their incomes is only fifty in one thousand, while the average deaths from the disease in all classes is one hundred and fourteen

in one thousand. Sedentary habits, too, exercise a pernicious influence, more especially the sitting constantly with the body leaning forward; both respiration and digestion are thus interfered with. Violent exercise, if followed by marked depression, acts deleteriously; while moderate exertion has quite the opposite tendency. The inhalation of various substances, gases and vapors, exerts a very injurious action on the system generally, while some act more decidedly on the lungs themselves.

Climate and season, no doubt, play a part in the development of consumption; but upon this subject professional opinion has undergone a considerable change since our knowledge became more extended and precise. The disease occurs in all latitudes, in temperate as well as in tropical climates. Some situations there are, unquestionably, freer from it than others, but none appear to be wholly exempt. Every one knows the fearful ravages consumption makes in this country; in Britain it seems to be equally formidable; Italy, and the most southern parts of it particularly, is no freer from the disease. As we shall have occasion to observe when mentioning the proper treatment of consumption, there is no doubt that a dry atmosphere and an equable climate are two most favorable circumstances, and in a preventive as well as a curative capacity both act. (See CLIMATE, HEALTH RESORTS.)

Bad and imperfect nourishment exercises a most injurious influence in this disease. In proof of this, nothing can be more striking than the amelioration, even in very advanced cases of consumption, which results when patients who have thus suffered are received into hospitals and supplied with wholesome food in sufficient quantity. Intemperate habits exert an injurious influence; not so much perhaps, it may be allowed, the actual abuse of intoxicating drinks, as the exposure, and deprivation of suitable nourishment, which, to a certain extent, always accompany that lamentable vice.

Irritant substances applied directly to the lungs themselves may set up an unhealthy action, and tend to arouse the disease in persons by nature predisposed to it, but are not in any way capable of causing the deposition of tubercle. Such occupations as those of stone-masons, miners, and knife and razor-grinders, ought to be avoided, or wholly given up by persons of this diathesis.

Is Consumption contagious? Nearly every author agrees that consumption does not spread by contagion; but, of course, the room in which a patient is lying in its later stages is rendered very unhealthy for any other person to inhabit. No one should be allowed to sleep in the same bed, or occupy the same chamber in which such a patient is lying. There are a few points of great interest as well as of importance in connection with the deposition of tubercles in the lungs, to which a

brief reference may here be made. In the great majority of instances, tubercles are first deposited in the upper parts or apices of the lungs; in these situations the softening change first occurs, and there also cavities or vomicae are first formed. In consumption, though both lungs usually suffer, the left lung is the one most frequently and seriously affected. This has been established by the careful inquiry of M. Louis of Paris. This distinguished physician met with seven cases in which one lung alone was affected: in five, the left; in two, the right. In thirty-eight cases in which the disease existed in a very advanced degree in the upper parts of the lungs, twenty-eight were on the left, only ten on the right side. Not-unfrequently, in the course of consumption, the windpipe and vocal cords become affected, tubercles are deposited there, and ulcers form, giving rise to many most distressing symptoms. Other parts and organs of the body are, moreover, apt to become involved; they rarely altogether escape; the liver too becomes variously affected; so do the kidneys, and not unfrequently the brain.

Duration of the Disease.—The duration of consumption varies very considerably, so much so as to have led to the adoption of the terms acute and chronic in relation to it. *There is the case of extremely rapid progress*, in which a person, almost invariably young, apparently in the enjoyment of health, though undoubtedly manifesting in greater or less degree those features which mark the scrofulous constitution, is suddenly affected with cough and febrile excitement; in whom, very shortly, some of the other symptoms become developed, and death, within a period of a few weeks, occurs. Such is appropriately enough named *galloping consumption*. On the other hand, and in marked contrast, there is the case of *very slow progress*—and those who thus linger are often of a more advanced age—in which cough and expectoration, with perhaps certain other symptoms, have lasted for months, it may even be years. The medium between these two extreme cases includes by far the larger number of the sufferers from consumption. And in order to give a just notion of the average duration of the disease, the following table, containing the results of Bayle and Louis's observations, may be consulted. Of 314 cases:

24 died within 3 months.	11 died between 3 and 4 years.
69 " between 3 and 6 months.	5 " " 4 " 5 "
69 " " 6 " 9 "	1 " " 5 " 6 "
32 " " 9 " 12 "	3 " " 6 " 7 "
43 " " 1 year and 18 months.	1 " " 7 " 8 "
30 " " 18 months and 2 years.	3 " " 8 " 10 "
12 " " 2 and 3 years.	11 " " 10 " 40 "

Thus, more than one-half died within nine months from the time when the disease declared itself.

Symptoms.—Two very opposite conditions of physical development are found to exist along with the consumptive tendency; in the one, there is the fair fine skin and bright red complexion, the fair hair, the light eye, with its pearly-looking white, and the tapering fingers; in the other, the dark hair and skin, the latter almost dirty-looking, and the swollen-looking upper lip. *Pulmonary consumption* creeps upon a patient very insidiously; he begins to feel weak and languid, his appetite fails him, and his digestive organs are out of order; he has slight cough, which is only occasional, occurring principally in the morning when he gets out of bed; it is usually dry at first, but soon becomes attended with expectoration of mucus. As the disease advances these symptoms increase, and the expectoration becomes altered in character, being frequently streaked with or composed of pure frothy blood, due to the giving way of small vessels at various stages of the disease. It becomes more purulent, and formed into gray, globular, flocculent masses, having the appearance of wool, and when spat into an empty vessel, it assumes the circular and flattened form of pieces of money, and hence called by the French *nummular sputa*. This kind of expectoration, and that consisting of pure, frothy, bright red, arterial blood, are most characteristic of this frightful malady, providing there be no disease of the heart obstructing the flow of blood through the lungs, the uterine function be healthy, and there be no blow upon the chest causing hemorrhage by mechanical injury to the lung itself. A great deal of faith is placed by patients upon the degree of buoyancy of the expectorated matters when placed in water; thus they suppose if the matter floats that the disease from which they are suffering is of a harmless character; but if it sinks, that their case admits of little or no hope. The truth is this, that the matter if raised with difficulty, is mixed with a large proportion of air, and will be more buoyant than that which is easily expectorated and unmixed with air. Many years ago, it was thought that the expectoration of this disease could be distinguished by its consisting of puriform matter; but since then it has been most clearly proved that the mucous lining of the air passages may secrete pus itself under the influence of the inflammatory process. Besides cough and expectoration, we soon get difficult and hurried breathing; the pulse becomes permanently quickened, and the temperature of the body, as measured by the thermometer, has been proved by Dr. Ringer to be elevated in proportion. The patient begins to waste and suffer from hectic fever and night sweats, the tongue becomes morbidly red, and the bowels much purged. In a large proportion of cases, ulceration goes on in the organs of speech, as may be readily detected by means of the laryngoscope, an instrument consisting of two plane mirrors, one of

which is fastened on to the forehead to reflect the light into the patient's mouth, and the other attached to a handle is placed against the back part of the throat, and draws an inverted representation of the upper part of the organs of respiration and the vocal cords, by the vibration of which we are enabled to speak and make ourselves understood. At various periods of this disease a stitch or pain in the affected side is caused by inflammation lighted up in the serous membrane covering the diseased part of the lung. The disease having reached its last stage, the patient has become much emaciated; his bones seem in danger of pricking through his skin, swelling of the legs and puffiness of the hands and face often set in, the teeth are dry and black, the lips and tongue parched, and the patient gradually sinks under the weakening power of this dreadful disease. During the later stages the monthly periods cease to recur in women, the hair falls off, and the eye becomes less sensitive. In many patients of consumptive habit the ends of the fingers are more rounded and clubbed, and the nails small, flattened, triangular, and bent inwards. The late Dr. Theophilus Thompson, of England, describes a festooned line of redness as occurring on the edges of the gums of such patients.

Prognosis.—As regards the prospect of recovery from consumption—for recovery does undoubtedly take place—much depends upon the original and existing constitution and the habits, past or present, of the individual, and the worldly means within his power. If the disease has become established in an individual of strong hereditary tendency to it, or in one who has broken down his constitution by dissipation or intemperance, or who is the subject of some other debilitating disease, hope of amendment can be but small; if, on the contrary, the affection is more probably induced, rather accidental than the result of original constitutional tendency, the probability is, that under proper management, and with the aid of the great curative powers of cod-liver oil, not only amendment, but permanent recovery, may be obtained.

Treatment.—Threatened consumption *is no disease for domestic treatment.* On the first suspicion of its presence, the person should at once be examined medically; the above symptoms may excite alarm, may afford most grave ground for suspicion, not only to the friends, but also in the mind of any medical man, but their certainty cannot possibly be pronounced upon, without the physical examination of the chest, which well-educated medical practitioners only can conduct. By that the case may very generally be pronounced upon, groundless fears dispelled, or just apprehensions confirmed and acted upon, while yet there is time to save or prolong life. One of the most important points to be attended to in the treatment of consumption, and one which should

never be lost sight of as a means for preventing the development of the disease, is the inhalation of a *pure* atmosphere.

Persons affected with or threatened by consumption, should spend as much time as possible in the *open air*—as long a portion of each day as their own strength and the state of the weather will allow. The really great advantage which consumptive patients derive from a residence in a mild climate, consists in the greater opportunity which is almost invariably thereby afforded for occupation in the open air.

In all cases of consumption a strict regard must be paid to the constitution, habits, and special circumstances of the patient, whatever these may be. Though consumption does not, in all cases, result from inflammatory action, there is good reason to believe that, in the progress of the disease, tubercular deposition not unfrequently gives rise to inflammation. A case may occur in which a full and generous diet will be for a time well borne, but anon symptoms indicative of inflammatory excitement come on; to persevere then with the former plan would be worse than foolish; it must be suspended, and to a lower diet, with perhaps some remedy against inflammation in addition, will be the appropriate change.

The hygienic treatment of consumption is, then, always to be regarded as of the greatest possible importance. Diet should consist of what is the most nutritious and most easily digested. (See *FOOD, DIET.*) Meals should be taken at regular intervals, and there should always be the most careful regulation of the digestive organs. Exercise in the open air, whenever practicable, is to be recommended. It may be active or passive; that is, walking on foot, or borne in a carriage or on horseback. Sponging of the surface of the body, and more especially of the chest, with cold or tepid water, over front and back, besides being very refreshing, is often directly salutary, and should never be neglected; for in this, as well as in many other diseases, it is of much consequence to maintain a proper exercise of the cutaneous function. Stated exercise of the respiratory muscles—as by making deep inspirations in the open air, or by gentle gymnastics—should be practised. A due amount of sleep should be indulged in; it is most consistent with health to go early to bed and to rise early in the morning. A change of occupation is to be counselled in the instance of those whose labor is heavy, or mental occupation great, for both of these should be avoided.

The great desideratum for the consumptive patient in the way of climate is one at once dry, mild, equable, with as little as possible variation between day and night, and least of all liable to sudden alterations. There can be no question that many cases of consumption are much ameliorated by a change of climate. That good effects may follow,

it is, however, essential that the change be made at an early period of the malady. When the disease has become far advanced, and the system exhausted, then the fatigue of a long journey, and almost necessary discomfort entailed by a residence from home, do much more harm than good. A judicious change, practised early, seems in some to have completely arrested the disease; in many, without effecting so much, life has, apparently through its means, been greatly prolonged; in certain other cases the most unfavorable symptoms have been subdued, and the termination of life smoothed and rendered infinitely more comfortable.

What is of far greater consequence, however, than any mere change of climate, is the influence of a *pure, fresh atmosphere*. Very special care should be taken that the sleeping apartment occupied by a consumptive patient is duly ventilated—that in it, to as complete an extent as possible, there is a free circulation of pure air. Of course due provision must be made against the introduction of a cold or chilly atmosphere: but the “night air” has been regarded too much in the light of a bugbear, for not only can the temperature of the bed-room, with sufficient care, be properly maintained while the pure air is permitted to enter, but the probability is, that the night air as such, never injured any one; it is only impure or chill air that does so. (See AIR, CLIMATE.)

As to the various special remedies which have been employed in the treatment of consumption only a few can be mentioned here. Foremost among these is *cod-liver oil*, an oil obtained from the fresh livers of several fishes, the ling and the skate, as well as the cod. Strong testimonies have been borne to its efficacy by the most eminent physicians of both Europe and America, and there are probably few medical men who have seen much of this sad disease who would hesitate to concur in the opinion of an eminent London physician, that “*cod-liver oil is more beneficial*, in the treatment of pulmonary consumption, than any other agent—medicinal, dietetic, or regiminal—that has yet been employed.” Here it need only further be observed, that, while cod-liver oil is being taken, it is of the greatest importance that the general hygienic means already referred to should not *be relaxed*; specially should care be taken that all heavy articles of food are avoided, the diet being, as indeed it always should be, plain but nutritious. And still more imperative is it that, if possible, regular exercise in the open air, at all events the inhalation of a pure atmosphere, be practised. It is the neglect of this that often leads to the assumption that the oil has disagreed; or, perhaps, that it will never agree. Let attention also be paid to the condition of the skin. By ablution and gentle friction its function is best maintained. Notwithstanding, however, a strict attention to all these particulars, *cases will*

occur in which cod-liver oil does undoubtedly not agree; and there are certain articles, one or other of which may, in such circumstances, be substituted for it. Of these, cream, fat of meat, olive-oil, almond-oil, glycerine, are the chief. (See COD-LIVER OIL.)

Phosphate of lime, hypophosphites of lime and soda, iodine, chlorine, arsenic, and iron in various forms, have all been recommended, but there is not much confidence to be placed in the power of any one of them to cure. The best form to use the iron is in the form of natural iron waters, the best in this country, probably, being the red sulphur spring of Virginia. Counter-irritation to the chest with croton-oil liniment, in the early stages of the disease, is beneficial, but later on, when the patient's strength is much exhausted, it only does injury by increasing prostration. The diet in consumption should be as nutritious as possible. Milk, cream, sugar, eggs, and strong animal broths, are all very beneficial. More or less milk should be taken at every meal. Coffee and chocolate are recommended instead of tea.

Exercise is also of prime importance. Prof. Flint, of New York, says, "I would rank exercise and out-door life far above any known remedies for the cure of this disease. There are grounds for believing that the advantage of a change of climate mainly consists in its being subsidiary to a change of habits as regards exercise and out-door life; exercise in the open air should be accompanied by either mental recreations or occupations which interest the mind." (See EXERCISE.)

In the endeavor to relieve the cough of consumption which often proves severe, causing much pain, preventing sleep, and (what must always be attended to when possible) perhaps preventing other patients sleeping, no remedy is superior to opium. With consumptive patients it seldom disagrees. For this purpose one or other of the preparations of opium may be employed. The dose, in the first instance, need not be otherwise than small. A few drops (5 to 15) of the solution of the muriate or acetate of morphia, alone or combined with an equal amount of antinomial wine, or 3 to 5 grains of the compound ipecacuanha powder (Dover's powder), given at intervals, three or four times in the day, often do good. Dr. Prout, of England, speaks highly of the aniseed in affording relief to the cough; the oil of aniseed (*oleum anisi*) may be given in doses of 5 to 10 drops in water. Of other remedies, hydrocyanic acid (prussic acid) in doses of 2 drops every four or six hours, may be mentioned; also chlorodyne, 5 to 10 drops whenever necessary. When these means fail, the application of a leech or two leeches over the upper part of the breast-bone may succeed in removing the cough; but if the patient be weak, this expedient must not be had recourse to. When there is much difficulty of breathing, a degree of relief may some-

times be obtained by the administration of 5 drops of chloroform, or 10 to 15 drops of chloric ether, or from the very cautious inhalation of a small quantity of the former. When the expectoration is very difficult, giving rise to urgent and distressing cough, its greater freedom may be encouraged by the use of a little antimony, ipecacuanha, or squill. On the other hand, the expectoration may be excessive, wearing out the patient's strength, and requiring to be controlled; in such circumstances, opiates may be given, or acetate of lead, in doses of 2 to 5 grains; or of gallic acid, 3 to 5 grains, alone or with opium; also naphtha. *For the relief of the perspiration*, oftentimes so distressing to the patient, no remedy is more effectual than the sponging of the body with vinegar and cold or tepid water. This expedient should be practised twice daily, morning and evening; and if the patient be weak, a nurse or attendant should undertake the duty. While this is not to be neglected, it may be necessary to administer some astringent medicine; and for this purpose there is the diluted sulphuric acid, in doses of 10 to 15 drops in water, three or four times a day. Or the following pill, highly recommended by Dr. Barlow, may be taken:

Take of Sulphate of zinc.....Six grains.
Extract of henbane.....Twenty-four grains.—*Mix.*

Divide into 6 pills, 1 to be taken each night at bed-time.

The diarrhæa, which frequently becomes very troublesome, must be checked by the ordinary chalk mixture, or a pill containing sulphate of copper or nitrate of silver combined with opium.

Take of Prepared chalk.....Two drams.
Powdered gum acacia.....Two drams.
Tincture of catechuOne and a half drams.
Laudanum.....One dram.
Pure waterSix ounces.—*Mix.*

Take 1 large tablespoonful every three or four hours. Or,

Take of Sulphate of copper.....Three grains.
Powdered opium.....Three grains.
Extract of gentian.....Twelve grains.—*Mix.*

Make 6 pills, 1 to be taken three times a day.

When there exists irritation of the throat, and when there is reason to believe that tubercular deposition has taken place in the upper part of the air-passages (larynx and trachea), some relief may be obtained from the inhalation of steam, or of a very weak chlorine vapor. When so affected, the application of a weak solution of caustic (nitrate of silver) may also be practised.

When bleeding from the lungs has occurred—and more particularly if the amount of blood passing is considerable—there are certain simple

but important rules to observe. Let the patient's head be kept high; in other words, favor the occurrence of a feeling of faintness, which often leads to the arrestment of hemorrhage. Let the air about the patient be kept cool; open a window in the room if the weather be mild; let the clothes upon him be light; let there be perfect quietness and silence. Cold should be cautiously applied over the chest; a piece of ice placed in the mouth; the limbs kept warm. If the action of the heart be excited, a little ipecacuanha or antimony, so as to induce nausea, should be administered. The administration of a cooling laxative is also called for. If the hemorrhage have been so profuse as to bring life immediately into jeopardy, or if it have occurred in the case of a patient already greatly reduced, then such remedies as those now mentioned are wholly inadmissible. Astringents must be given. Acetate of lead (3 or 4 grains) in solution, with a little acetic acid and laudanum, may be given every half hour; or gallic acid, in similar doses, to the extent of 30 grains in twelve hours. The most efficacious remedy which we at present possess for controlling hemorrhage is ergotine, which is best used in doses of 3 to 5 grains injected under the skin, or, better, into the substance of a muscle. Stimulants, moreover, may be required; they are best administered cold. Digitalis is sometimes found useful. $\frac{1}{2}$ a teaspoonful of common salt may be given to the patient if no other remedy is at hand, and repeated at intervals of half an hour till other means are procured.

Preventive treatment.—The prevention of so fatal a disease as consumption is a more important subject in a work like the present than its treatment; and in those predisposed, the preventive or “prophylactic” system must be continued life through, even to old age. *It is a popular error that by the time middle life is reached, the liability to consumption is over.* Such is not the case, for even the “threescore and ten” is sometimes terminated by the disease. According to the tables of Sir James Clark, it appears “that the greatest number of deaths from phthisis (consumption) happens between the ages of twenty and thirty; the next greatest number from thirty to forty; the next from forty to fifty, and many even up to seventy years of age; more women than men, on the average, dying from the disease. It has already been remarked what a potent influence hereditary predisposition towards consumption exerts, and how strongly this predisposition may be developed or increased in a family by marriage union. People will marry, whatever their constitutional predisposition; but if either their own constitution or that of their family generally is at all consumptive, it ought to be a very weighty consideration with them, that the union should be with one as little inclined towards the disease as possible. When the

children in a family evidently inherit or display consumptive tendencies, in addition to the precautionary measures already enumerated in the article CHILDREN, it should become a question, how far permanent removal to a more genial and drier climate might be desirable. To the rich, who have it in their power to change their residence as and when they may, the consideration is perhaps of less immediate consequence; but to the laborer, the mechanic, or the man of small income, it must be a question of paramount importance, whether, by emigration to such a climate, he may not only save himself the constant sorrow, actual and anticipated, of seeing his family drop one by one into their early graves, but also save the constant pull-back upon his exertions, and drain upon his resources, which a sickly family necessary entails. But, indeed, in any condition of life, the question of tendency or not to consumptive disease, should always influence the choice of field for exertion, and not only of field, but also of the nature of the business of life.

To those who may be able to go abroad, we would say, choose the sunny shores of the Mediterranean, but if you would expect to reap any benefit therefrom, go in time, before the system has become exhausted, and travel a weariness instead of a recreation. The island of Madeira is, in the equability of its temperature, one of the most desirable places known for the consumptive, where the necessary comforts can be obtained. The summer and winter being mild, it is peculiarly suited for the permanent residence of the patient. The climate of the Canary Islands resembles Madeira, but is not quite as equable.

For those who do not wish to leave the shores of America, there remain several places nearer home, where the climate is especially favorable. Among these is Florida, which seems to be—the southern portion especially—a model climate, having an equable temperature, moderate moisture, moderate and regular winds, and comparative freedom from local diseases. Minnesota, Colorado, and California also possess an atmosphere peculiarly favoring the restoration of consumptive patients. Many have gone thither, with the incipient symptoms of the disease, and after a residence of some time there, have come home, either completely restored in health, or vastly improved. Dr. Hatch, of Sacramento, Secretary of the California State Board of Health, says “that for the majority of invalids seeking a change of climate in consumption, the mountains—preferably the coast range—offer advantages, during the summer and early autumn months, superior to those of any other portion of the State; and that a certain proportion may find the eastern slope of the coast agreeable and beneficial, even during the winter seasons; and that for a large proportion of consumptives, some point on the southern

coast seems eminently suitable as a winter residence." Dr. Hatch also entertains the opinion that a large proportion of those suffering from the first stages of consumption, are benefited by a residence in California; some cases of the second, but no very strong inducement could be offered to those who have passed into the third stage. *The point of great importance in this matter of a change of climate is not procrastinating until too late.*

Any occupation which renders the inhalation of irritating substances unavoidable, is to be eschewed by the consumptively inclined man, and not less so, that which involves confinement in a constrained position, or in a close room. Of the former class, grinding or polishing of metal or stone, especially if dry, flour-grinding, etc., are examples; of the latter, the occupation of the tailor, the shoemaker, the seamstress, or the compositor. The most eligible employments are those which require muscular exertion of not too exhausting a kind, and without too great exposure to the weather; the gardener, the carpenter, the butcher, the farmer, are all less likely to be the victims of the disease. In whatever situation or grade of life, however, a person may be placed who is predisposed to consumption, much may be done to keep up the powers of resistance, by keeping up the general health to the highest possible standard, by diet, early hours, attention to the skin, and avoidance of all kinds of dissipation and intemperance; smoking tobacco should be shunned as particularly injurious. Regular exercise is to be taken—the chest and shoulders should be bathed every morning with cold salt water, and rubbed afterwards to promote reaction. Cheerfulness of mind, and moderate mental exertion are important, whilst perfect temperance in the use of alcoholic stimuli is indispensable, but any change to their total disuse cannot be made in many cases without danger. All the usual sources from which "cold is taken" are to be shunned, particularly *wet feet*, sitting in *damp clothes*, *crowded ball-rooms*, and *public assemblies*; and lastly, when exposure to cold air, especially to east winds, or to the foggy atmosphere of night, is unavoidable, the protection of a respirator of some description should be resorted to. (See AIR, VENTILATION, HOUSES, CLIMATE, MADEIRA, CANARIES, HEALTH RESORTS, MINERAL WATERS, COLD, DAMP, COLD FEET, CLOTHING, ABLUTION, BATHS AND BATHING, ATOMIZER, INHALATION, HEMORRHAGE, COD-LIVER OIL, HYPOPHOSPHITES, DIGESTION, DIET, FOOD, MEALS, DRINKS, SLEEP; STIMULANTS, ALCOHOLIC; EXCITANTS, REGIMEN, EXERCISE, HEALTH, SANITARY SCIENCE, AUSCULTATION, STETHOSCOPE, ETC.)

CONTAGION, *kon-ta'-jun* [Lat. *contagio*, from *con*, and *tango*, I touch], is sometimes used to express the actual agent by which disease is propagated; but more generally the propagation itself. Properly

speaking, the term ought to be confined to the propagation of disease by actual contact, in contradistinction to infection ; but it is now used in the more extended sense of "infection" likewise. Contagious diseases may be communicated only by actual contact of individuals, as in the case of itch, etc. ; by inoculation, as in the case of cow-pox ; or in addition to both or either of these modes of transmission, through the atmosphere by infection, as in the case of small-pox, etc.

This power of propagation through the atmosphere, however, does not, independent of epidemic and endemic influences, extend far from the patient. Certain circumstances influence the extent of contagious diffusion. Of these, the most distinctly ascertained are atmospheric impurities ; for it is ever observed, and we believe it may be predicated of every disease possessing the property of remote contagion, that its contagious matter is propagated to greater distances in a dirty, crowded, and ill-ventilated apartment, than in one of which the air is pure. The same principle applies to articles of dress and furniture ; those which are contaminated by animal secretions and effluvia, being much more readily impregnated with contagious matter than those which are clean. Peculiar atmospheric conditions certainly, also, favor the propagation of disease by contagion ; sometimes these conditions are inappreciable, at others they are evidently connected with a superabundance of warmth and moisture ; and also we have good reason to conclude, with certain states of electrical disturbance. The discovery of the new agent, or modification of the known existing agent oxygen—named ozone—may probably shed some new light upon the subject of contagion. Actual contact, however, or even immediate vicinage, to a person laboring under a contagious disease, is not requisite for its propagation to others ; this may be affected by means of substances to which the contagious matter clings ; these substances, which go by the name of fomites, are more generally clothing and stuff furniture which have been about or near the bodies of those laboring under the disorder. These fomites are apt to be impregnated with the poison in a very concentrated condition, and are capable, not only of retaining it for a long period, but of transporting it from place to place. A sofa on which a patient laboring under scarlet fever had lain, has been known to propagate the disease six months afterwards ; and clothes which have been about the sick are constantly ascertained to have been the media of conveying fever, etc., to distant localities. Wool and cotton seem particularly apt to attract and retain contagious emanations ; but, indeed, all loose textures appear to have the property, whilst on the other hand, polished and hard surfaces and substances, are much less likely to act as fomites, if they do so at all. Everything of unnecessary drapery or clothing should be

removed from the chambers of those sick of contagious maladies, or, indeed, of any malady; for a sick chamber must always, in a lesser or greater degree, have an atmosphere containing unhealthy emanations, which it is expedient, both for the good of the patient and of others, should find no unnecessary attractions or lodgments. Further, it is advisable to have the furniture as much as possible of hard and polished substances; and the dresses of those in attendance upon the sick, especially if habitually so, might with advantage be made with a glazed surface. Those substances which have necessarily become the fomites of contagious matter, ought to be scrupulously freed from it by complete and lengthened exposure to the open air, by washing, or by exposure to the fumes of chlorine in a close apartment; or by all three, the chlorine fumigation being first resorted to. Indeed, those persons under whose management a case of contagious disease has occurred, ought, as a Christian duty, to make sure that every article of stuff, furniture, clothing, etc., has been fully and carefully purified before others, either in the way of social intercourse, or in occupation, particularly that of the washerwoman, come into contact with them. The following is the most systematic course of action when the generation of contagious matter has ceased in an apartment; either by the death or recovery of the patient, premising of course, that throughout the illness measures have been, or ought to have been resorted to, to preserve purity. During the day, the door being shut, the windows should be open to their full extent, and the infected articles freely exposed to the air; during the night, the windows and door being closed, chlorine should be well diffused through the apartment; this having been repeated, if possible, for two days and nights, all textile fabrics and the like should be removed; those that are capable of being washed put into cold water, others placed in the open air. All articles of furniture left in the room, also the floor and oil-painted wood-work, should be well scoured. If the chamber be a white-washed or colored one, it should be "re-done;" if papered, it is only a safe precaution to re-paper it. The bed requires the greatest amount of care; if of wool, it is better destroyed altogether; if of hair or feathers, these should be exposed to the heat of re-baking, that is, at least to a temperature of 210° Fahr.; and the ticking either thoroughly fumigated and washed, or entirely renewed. These directions may appear minute and troublesome, but they are far from being too much so when put in comparison with the fearful scourge of a contagious disease which has established itself in a household or community, and which perhaps might have been checked at the outset by the adoption of prompt and vigorous measures. The poorer classes and the ignorant cannot or will not adopt, in most instances, effective pre-

cautions; it remains for the rich, for the well-informed, to point out their necessity, and lend a helping hand to their fulfilment, not only as an act of Christian charity, but as a means of safety for themselves; the disease which takes its origin in the cellar of Lazarus, not unfrequently ends by establishing itself in the mansion of Dives. It is not a necessary character of contagious disease that it has itself sprung from contagion—some of the most virulent and spreading fevers, such as those of the ship, or of the old jails, had no such commencement; but had their origin in the decomposing emanations from the bodies of numbers of individuals confined in unventilated and insufficient spaces. In addition to the disinfectants already mentioned—air, water, and chlorine—many others are and have been used, such as the vapor of vinegar, of pitch, or of tobacco or camphor; large fires also used to be a favorite method; none of these last-mentioned are to be depended upon. The vapor of muriatic acid, and the absorbing properties of newly-slaked lime may be resorted to in the absence of chlorine with advantage. In many instances, particularly in the case of clothes, and other textures which will not wash, heat might be used more extensively than it is at present as a disinfectant. The experiments of the late Dr. Henry, of Manchester, England, proved that whilst the various textile fabrics might be exposed to a heat of at least 212° Fahr. without injury; their power as fomites, or of propagating contagious disease, after having absorbed the emanations, is destroyed by the high temperature. (See DISINFECTANTS, AIR, BED-ROOM, CHLORINE, BROMO-CHLORALUM, CHLORIDE OF LIME, ETC.)

CONTAGIOUS DISEASES. (See CONTAGION.)

CONTINUED FEVER. (See FEVER.)

CONTUSION. (See BRUISES AND CONTUSIONS.)

CONVALESCENCE, *kon-va-les'-sense*, is the transition period between the cure or cessation of severe disease, whether acute or chronic, and the re-establishment of health. The commencement of convalescence, or the point at which the characteristic symptoms of disease cease, is sometimes distinctly marked, more especially after acute disorders; frequently, however, the tendency towards health, particularly after chronic disease, is much more insensibly established; in the latter case, too, the progress of the convalescence is slower than it is in the former. Its rapidity or protraction, moreover, is much influenced by age, and the nature and treatment of the previous malady. Children convalesce rapidly, old people the reverse; but in all cases the natural power or resiliency of the constitution exerts much effect. In no case, perhaps, is convalescence more tardy and unsatisfactory than after illness in which much loss of blood, or of its constituents, has taken place,

either as a consequence of the disease, or of blood-letting in the treatment of it. Since, however, the practice of abstracting blood in large quantity by the lancet has been modified, there are fewer cases of protracted convalescence from this cause.

When convalescence from acute disease commences, the previously quick pulse falls to the natural standard, the tongue begins to clear, the skin becomes cool, sleep is refreshing, the mind acquires a more healthy and hopeful tone, and the person looks better. There is nothing which more assures a medical man of the condition of his patient, than the look, the expression of the countenance, to which the first glance, as he enters the room of sickness, is almost instinctively directed. The look of convalescence is tranquil, placid, not the heightened color and bright eye of hectic, which so often deceives the inexperienced with delusive hopes. When the brain has been much affected, however, the condition of the mind, and consequently the countenance, assumes its natural look more slowly.

The management of convalescence is extremely important; errors in this respect frequently expose the already weakened patients to attacks of other disorders, or induce relapses to the diseased actions which had just been cast off. The convalescence after some particular diseases is more liable to such accidents than it is in others. That after fever is peculiarly so, and after scarlet fever, the tendency to cold and its consequences, dropsical swelling, and affection of the kidneys, is so very common, and so frequently fatal, that the greatest possible care is requisite. During convalescence from acute disease, and especially of an eruptive character, many of the disorders characteristic of the scrofulous constitution show themselves: the eyes become the seat of chronic inflammation, purulent discharge from the ears occurs, and chronic eruptions show themselves upon the skin, of the head especially. Moreover, these disorders, now, perhaps, for the first time apparent, are apt to continue even after convalescence, properly so called, is over. Further, relapse in convalescence often occurs from too soon employing actively the previously affected organ; the liability to this mishap must be evident to the common sense of every one. In the case of the eye, it is evident to the senses, after inflammation of that organ, its undue exercise, or even its exposure to full daylight, will often be followed by a return of the disease. Such is the case elsewhere, and whether it be the eye, or the brain, or the stomach, which has been affected, return to the ordinary exertions of health must be made with the greatest caution.

The clothing of a convalescent patient requires particular attention; there is much susceptibility to cold, and to atmospheric vicissitudes. For the requisite information, the reader is referred to the article CLOTH-

ING. General exercise is to be resumed cautiously, and should never be carried to the extent of fatigue. Diet, however, is the great source both of error and mischief—the greatest difficulty which the medical man has to contend with; that is, in getting it properly attended to, and his orders properly carried out. Whilst disease is in progress and alarm is felt, directions are tolerably well, or indeed strictly obeyed; but no sooner does the patient begin to get better, than irregularities commence. The popular idea seems to be that convalescence must advance in proportion to the amount, and often to the stimulant qualities of the food given; and many a hopeful case sinks back into fatal relapse, from the wilful and injudicious kindness of friends. The point is one which requires to be strongly enforced on the minds of people generally, that in diet, as in everything else, convalescence must be gradual, and that nothing is more dangerous, more likely to induce relapse, than the injudicious use of solid animal food, or of stimulants. Milk, and the various farinaceous preparations with which it is usually combined, such as arrowroot, sago, rice, bread, etc., is perhaps the most generally useful article of diet in convalescence; next come the teas made from fowl, mutton, veal, or beef—alone, or mixed with some of the farinacea; next in succession, eggs lightly boiled; and lastly, solid meats, of which tender mutton is probably the best, are to be permitted. Ripe fruits in their season, if not contra-indicated by the nature of the previous disease, and if they do not occasion flatulence or diarrhœa, are both grateful and serviceable. If alcoholic stimulants can be dispensed with, it is the safer plan, and when requisite, the time of their employment and the kind used, is best left to a medical attendant. A good deal must depend upon the previous habits of the person. Gin, in cases in which the urinary secretion is deficient, is most suitable; or light sherry, if the circulation is excitable; and port wine or porter in extreme debility. One of the most useful of the alcoholic stimuli, in convalescence, is the bitter India beer or pale ale; the amount of alcohol it contains is not large, its bitter exerts a beneficial tonic effect upon the stomach, whilst the narcotic principle of the hop tranquillizes the nervous system, often so painfully irritable. In whatever form nourishment is given to the convalescent, it should be in small quantity at a time, but as frequently repeated as natural appetite requires.

The atmospheric purity of the chambers occupied by persons recovering from sickness requires great attention, and the temperature ought to be kept as nearly as possible about 58° Fahr. Lastly, when convalescence has reached a certain point, there is no remedy which so surely promotes perfect recovery, and confirms health, as change of air. Almost any change is beneficial, but in many cases much more advan-

tage would be derived, if persons thus seeking health acted upon competent medical advice. It is to be regretted, that so many of the accessories which promote speedy and certain convalescence, have hitherto been unattainable by the poorer classes. Care, and good nursing, and the highest medical skill in the country are bestowed upon the poor inmate of the hospital up to a certain point, and convalescence is barely established, when too often the patient has, in order to make room for others, to leave the comfortable home of his sickness, with all its nourishing food, and its comforts, and return to scanty nourishment, exposure to weather, and to an unhealthy home. In a climate like that of the United States, the point is one which requires more attention than it has hitherto received. Proposals for the establishment of convalescent villages have been made in England, and some steps have been taken towards providing convalescent stations; but an immense deal requires to be done before the want is supplied, and charitable bequests and donations might be worse directed, than into such a channel. (See AIR, BED-ROOM, SICK-ROOM, CLOTHING, HEALTH, EXERCISE, CLIMATE, COOKERY FOR THE SICK, DIET, HEALTH RESORTS, MINERAL WATERS, ETC.)

CONVALLARIA MULTIFLORA, *kon-val-la'-re-a mul-te-flo-ra*, Solomon's seal, or Giant Solomon's seal, a perennial plant belonging to the Nat. order *Liliaceæ*. It grows on the sides of meadows, high banks, woods and mountains, in the Northern and Eastern States and Canada. The root is the part used in medicine. It is tonic, mucilaginous, and mildly astringent, and is valuable in the whites, excessive menstruation, female debility, pectoral affections, and piles. It has been found beneficial in erysipelas and cutaneous affections. A large dose will produce vomiting, and act as a cathartic. Dose: of the infusion, 1 to 4 fluid ounces; fluid extract, 2 to 6 teaspoonfuls, three or four times a day. (See INFUSION.)

CONVOLVULUS, *kon-vol'-vu-lus*, bindweed, a genus of plants belonging to the Nat. order *Convolvulaceæ*. The *C. Scammonia*, a native of Asia Minor, is a valuable medicinal plant, being the source of the purgative gum-resin called scammony. This is obtained from the fresh root, by cutting the top obliquely off, and allowing the milky juice which exudes to be collected in shells or other vessels. Scammony is a drastic purgative, somewhat of the nature of jalap, but less active. Dose, 5 to 10 grains. The resin of scammony is obtained by digesting the root in coarse powder, in a covered vessel with rectified spirit. Then pass through a percolator, adding more spirit until the root is exhausted: add water, and distill off the spirit, and when cool pour off the supernatant fluid from the resin. Dose, 3 to 8 grains.

The confection consists of 3 ounces of scammony in fine powder, 3 fluid ounces of syrup, $1\frac{1}{2}$ ounce each of clarified honey and ginger in fine powder, 1 fluid dram of oil of carraway, and $\frac{1}{2}$ fluid dram of cloves. Dose, 10 to 30 grains. The compound powder contains 4 ounces of scammony in powder, 3 ounces of jalap in powder, and 1 ounce of ginger in powder. Dose, 10 to 20 grains. The $\frac{1}{12}$ of a grain of podophyllin, mixed with 2 grains of scammony, makes a good and safe purgative for a child of three years of age.

CONVULSIONS, *kon-vul'-shunz* [Lat. *convello*, I pull together], is a state of alternate violent contraction and relaxation of the muscles, independent of the influence of the will; those under its direct control are most frequently affected, but not invariably so; the muscular fibres of the stomach, and other involuntary muscles, are often the seat of convulsion, but in this case the term spasm is generally applied to the disorder. Convulsions are classed by medical men as “tonic,” or those in which the state of contraction is maintained for a considerable period without alternation with relaxation, and as “clonic,” or those in which the two states succeed one another with more or less rapidity. When the relaxations and contractions are very slight, and very rapid, the condition is tremor. The first of these, or the tonic convulsion, occurs in lock-jaw in its most perfect form; the second, or clonic, in hysteria; the third is seen in the persons of hard drinkers when not under the influence of their stimulant.

Convulsions may be either general or partial, affecting only the muscles of the eyes or eyelids, of the face, or of one of the extremities, or of one side of the body, or they may shake the whole frame in convulsive agitation, such as occurs in epilepsy. Some of the most characteristic local convulsive actions occur in the muscles of the face, causing squinting, etc., or the peculiar “sardonic smile” or grin, which is caused by forcible retraction of the corners of the mouth, exposing the teeth

Sometimes an attack of general convulsion is pre-warned by a local affection, the eye is unnaturally turned, or the thumbs, as often occurs in children, drawn across the palm of the hand; or hiccup, which is a convulsive affection of the diaphragm, precedes the more widely diffused affection. In partial convulsion, the mind is probably unaffected; but when the affection is widely distributed, or general, there is frequently no outward sign of consciousness, and when the convulsion ceases, and consciousness does return, there is no recollection of the past paroxysm.

Causes.—Convulsions are the result of a great variety of causes. The brain itself may be the organ primarily affected; there may be disease of its structure, or pressure or irritation exerted upon it, by disease

or accident ; there may be too great determination of blood to the head, or the reverse condition may exist, and the supply of stimulant blood to the brain may be inadequate. But convulsions quite as frequently arise from irritation of distant organs affecting the brain and spinal cord ; in childhood, the irritation of teething is a most prolific source of convulsions, and perhaps not less so, irritation of the stomach and bowels ; causes which might, in the adult, produce transient headache, in the susceptible nervous system of the child may cause convulsion. In females, irritation connected with the generative system is a frequent source of convulsive action, and, indeed, one of the most formidable phases of the disorder occurs in the process of childbirth. Strong mental emotion of any kind, such as joy, fear, etc., are apt to cause convulsion. Suppression of accustomed discharges likewise are often followed by an attack of the malady. Worms in the intestinal canal cause it ; and the onset of acute disease, small-pox in particular, but also febrile disease of any kind is, in many instances, heralded by an attack. In fact, with those who are susceptible, there is scarcely an agent, from a carious tooth or the scent of a flower upwards, which has not the power of exciting convulsive action—or something nearly approaching it—of the human frame.

Symptoms.—An attack of convulsions may come on suddenly, without any previous warning, but more generally it is preceded by symptoms. If in a child, there has probably been disturbed and moaning sleep, starting, screaming, grating of the teeth, peevishness, heaviness about the eyes, or squinting, or rolling of the ball in sleep, and a disordered condition of the bowels ; if in an adult, dreaming and unsettled sleep have occurred, headache, noises in the ears, disturbed and clouded vision, giddiness, nervous fears, loss of memory, and confusion of mind, have accompanied disorder of the digestive organs, a tendency to vomit without obvious cause, or colicky pains in the bowels, hiccup, and cramps in the hands or feet, have been the premonitors, and just before the accession of the paroxysm, a creeping sensation or “aura” is often felt to extend gradually from an extremity up to the head. In one of the most terrible and protracted successions of convulsive attacks the author ever witnessed, each paroxysm could be distinctly traced, commencing in one toe, gradually extending up the limb and trunk, until the whole frame was fearfully agitated. In such cases the convulsive movements of the limbs, and the distortion of the features are truly terrible to witness ; but there is every reason to suppose that in many instances, and it is a great consolation to do so, the trial is to the spectators, and that the cerebral disorder which causes such violent commotion of the body, extinguishes for the time any consciousness of suffer-

ing. Of course when the mind is unaffected, as it is in lock-jaw or tetanus, or in hydrophobia and other cases, the pain of the convulsion is severely felt. The length of time a convulsion continues, may vary from a few minutes to many hours, but generally the period is short, the paroxysms returning after intervals of cessation. The fit of convulsions may terminate in apoplectic stupor, in a state of extreme nervous exhaustion, in lethargy, or in prolonged sleep. For some time after, there is usually much languor, both physical and mental, and the faculties of the mind are confused and incapable of being exerted. There may remain permanent lesion of the nervous functions, such as paralysis, or disordered nervous action, such as St. Vitus's dance; a squint often dates from an attack of convulsions in childhood. In some cases bleeding from the nose or ears, or vomiting, or diarrhœa appear to terminate the attack.

Treatment.—Some persons are much more liable to be affected than others, and children, as a general rule, especially so; it is therefore very important, that the premonitory symptoms, either in them or in individuals of excitable temperament, should be carefully noted and attended to, and the exciting cause, if possible, discovered and removed. In children, the state of the gums, and of the secretions from the bowels, are especially to be watched; the first may require lancing, or the second clearing out by an active purgative, such as calomel and scammony; but when, from the occurrence of warning symptoms, and especially if the child, or any other member of the family, have previously suffered from convulsions, an attack is supposed to be impending, medical advice should be procured. A point of great importance to be determined is, whether the disordered condition is connected with excess or deficiency of circulation in the vessels of the head and spine; for if the former, it is evident that the lowering treatment which it requires, must be injurious should the latter condition prevail, for this must be corrected by tonic medicines, or even by the exhibition of stimulants such as sal-volatile, or brandy in minute quantity. It must be clear to all, how important it is, either in the prophylactic or in the actual treatment of convulsions, whether in children or adults, that this point should be clearly ascertained. And as it is one which sometimes requires considerable medical acumen and experience satisfactorily to determine, it must be equally clear, that it must render non-professional interference in such cases a matter of hazard, and not lightly to be undertaken; at the same time, the sudden and alarming nature of convulsive attacks, renders it necessary that some means of discrimination, and some safe rules of treatment, should be known to all who are likely to be appealed to in such cases, particularly if resident in places far

removed from immediate medical assistance, and it is reiterated that the two opposite states must be kept in mind, the one arising from excess, the other from deficiency of circulation, and the treatment modified accordingly.

If convulsion be threatened in a child of full habit, with firm flesh and good color; if teething is going on, the gums must be looked to, and lanced if requisite, the bowels may be freely purged with calomel and scammony, or with gray powder at night, followed by senna in the morning, the diet being at the same time reduced; and should there be much heat about the head, and the symptoms remain unabated, leeches—one, two, or more, according to age—may be applied to the temples, and cold to the head generally. If, on the contrary, the child, even though fat, be pale, and the flesh loose, and if it is of feeble habit, anything like lowering must be avoided; the gums ought, of course, to be attended to, and if the bowels are disordered, the secretions must be gradually corrected by 2 grains of gray powder, given every night at bedtime, and, if requisite, a small dose of castor-oil in the morning; likewise, in either of the above cases, an antacid will probably be of service, such as 3 or 4 drops of potash solution, or 1 teaspoonful of fluid magnesia, in the milk-food, given twice a day. In judging of the energy or weakness of the cerebral circulation in infancy, as long as the opening of the head is unclosed, it affords a guide to judgment. When at this point, the scalp and sub-jacent parts appear depressed, the condition is one in which anything like lowering measures are inadmissible. Keeping the already given cautions in view, and remembering how often, both in child and adult, convulsion is threatened in consequence of irritation, not in the brain or spine, but at a distance from them, when it is suspected that an attack is impending, and when medical assistance cannot be at once procured, attention should be directed to any possible source of irritation, and should any such be found, its removal should, if possible, be effected. If no appreciable source of irritation is discovered, to which symptoms of threatened convulsion can be referred, and if the brain itself be suspected to be in fault, the same cautions respecting excess or deficiency of vascular action must still be remembered. If plethora is undoubted, if the individual is of full habit, florid, and with a strong pulse, leeches and cold to the head, and free purging, with low diet, may be resorted to with every prospect of advantage; on the contrary, if the habit is feeble, the more negative system will be most safely pursued; the bowels must be regulated but not purged, the diet attended to as regards digestibility, not lowered, and every source of nervous exhaustion, either fatigue of body or mind, or of sexual character, most scrupulously avoided. If the extremities are cold, as they often are, their warmth must be pre-

served ; if the head is hot, the moderate use of cold will allay nervous excitement, as well as vascular action. Provisional measures like the above, will, if used with judgment, be most valuable even in unprofessional hands, but they are not to supersede medical examination, which must be submitted to.

In the treatment of an attack of convulsion the above directions must equally be borne in mind and acted upon. *When a child is seized with convulsions* the most generally available remedy is the warm bath, and if used with judgment it is a good one. The temperature should be 98°; if the child is strong and plethoric, it should not be immersed above the waist, and while in the bath, cold should be applied to the head ; if the child is weak, it may be put in the water above the shoulders, in either case the immersion is to be continued for twenty minutes. The gums are to be lanced if requisite, and leeches applied to the head under the cautions already given as to the abstraction of blood, and under the same cautions, purgatives are to be resorted to, either the more powerful ones of calomel and scammony, or calomel and jalap, or senna, or indeed the first efficient medicines of the class at hand, or the milder agency of castor-oil ; in addition, an aperient injection may be administered with advantage. When the child is taken out of the bath, it should at once be wrapped up in warm blankets, and laid in its cradle, or in bed, and cold used to the head, or not, as thought well, and if the fits still continue, mustard plasters made with half linseed-meal may be applied to the legs, but must be removed as soon as the skin is well reddened.

When an adult is seized with convulsions, the treatment, conducted upon the same principles, must be very similar to that recommended for a child, with exception of the bath, which cannot be conveniently used ; in its stead, a warm bed, with hot applications to the feet, limbs, etc., must be substituted, and mustard plasters may be used more freely. If there is much heat or excited action about the head, it should be shaved, or the hair cut close off, and cold or iced applications freely employed. In following out these directions, the non-professional will be doing much, indeed all they can legitimately, to relieve during the longer or shorter interval that must necessarily elapse before the case is seen by a medical man. Lastly, it must be borne in mind that convulsions are not unfrequent in extreme intoxication, and also in poisoning from narcotics, such as opium, their occurrence from such causes would of course materially modify the treatment. In children particularly, they are unquestionably the frequent result of the administration of laudanum, and more frequently still of quack soothing and carminative medicines and elixirs. Whether in child or adult, if there is any suspicion that the stomach itself is loaded or irritated by injurious food, an

emetic is of course indicated; mustard will often be the readiest, but ipecacuanha is preferable for children, in an average dose of 5 grains for a child of four years of age. (See APOPLEXY, BATHS, CHILD, CLYSTER, CROUP, DENTITION, LOCK-JAW, SPASM, SAINT VITUS'S DANCE, WORMS, ETC.)

COOKERY FOR THE SICK, *kook'-ur-e*. It seems almost unnecessary, and yet is of such importance that we will not offer any excuse for commencing this article by stating, that as a general rule, no cooking of any kind whatsoever should be done in the sick chamber, and it cannot be too much insisted upon that all cookery for the sick must be simple. The best methods of preparing suitable nourishment for the sick is a matter of so much consequence, that its consideration here cannot be out of place. Its importance is, perhaps, scarce sufficiently appreciated by any, and with a large class almost total ignorance prevails respecting it. Even when the needful materials are abundantly provided, still, things are prepared in such a barbarous and uninviting fashion, that the fastidious appetite of an invalid turns loathing from them; and this, simply from lack of knowledge, or of attention in preparing. Constantly is the medical man told—"I could eat, but I cannot fancy such food as we have here"—and this, when material is amply provided, but nicety wanting. The reader is referred to the separate articles which treat of the various forms of food for further information; but the following recipes are a few of the most directly useful sick-room articles of diet—and here, it may just be hinted, that neatness in serving up, as well as care and perfect cleanliness in preparing, makes sick-room cookery more likely to be attractive to an easily-offended appetite.

ARROWROOT.—Not quite 1 tablespoonful of arrowroot powder is to be mixed slowly and smoothly in a basin with a little cold water—and when done, 1 pint of boiling water added; it should then be sweetened to taste, and put on the fire to boil for five minutes, stirring well the whole time. If wine is permitted, it should be put to it after the arrowroot is poured into the basin. The same quantity of arrowroot is a proper one, when it is prepared with milk instead of water.

SAGO requires thorough washing in cold water, to take away its earthy taste; after doing so—1 tablespoonful will be a sufficient quantity—put it in 1 pint of milk, and boil it slowly till it is quite soft and has thickened the milk—ten minutes or a quarter of an hour is sufficient time—sweeten to taste, and add wine, or flavor with lemon-peel according to circumstances. Some invalids prefer tapioca to sago. It is prepared in the same quantity as the other, but does not require the previous washing, and takes only half the time for softening on the fire.

In all preparations for the sick, let the constant stirring whilst on

the fire be attended to, whether directed or not. A taste of burn renders sick-cookery perfectly abominable.

MACARONI.—To 1 ounce of macaroni add a little cold water, boil for a few moments and pour off, then add $\frac{1}{2}$ a pint of milk, grate in cracker crumbs and add a little nutmeg. Vermicelli may be made in the same way.

CORN STARCH.—Add to 1 pint of boiling milk, 3 tablespoonfuls of corn starch, mixed with milk into a thin paste, add 1 egg, a little pinch of salt, and sufficient white sugar to sweeten. Stir to prevent burning, and boil until thick, then turn into molds to cool.

CRACKER PUDDING is made by pouring on 4 or 5 crackers rolled fine, 1 pint of boiling milk, adding a piece of butter the size of a walnut, and 2 eggs, and baking for half an hour. It may be eaten with wine sauce.

RICE PUDDING.—Take 2 tablespoonfuls of rice, sugar to suit the taste, 1 egg. Butter size of a walnut, 1 pint of milk. Mix thoroughly and bake.

GROUND RICE MILK.—One tablespoonful of ground rice, $1\frac{1}{2}$ pints of milk, and $\frac{1}{2}$ ounce of candied lemon-peel. Mix the rice very smoothly with the milk, then add the lemon-peel cut into very small pieces; boil for half an hour; and strain as soon as off the fire. This is an excellent nutritious beverage for the sick when strict abstinence is not required, and for early convalescence.

CALF'S FOOT CUSTARD.—Take 1 calf's foot, put it into 1 quart of new milk, let it simmer till reduced to 1 pint, beat up the yolk of 2 eggs with a little pounded sugar, mix all together, boil it for a few minutes, let it stand, and skim well. It should have the chill taken off before eating it.

MILK TOAST is made by toasting a slice off a loaf uniformly brown, then laying it on a plate and pouring on it as much boiling milk as will thoroughly soak it. A little butter, a few grains of salt, or finely pulverized white sugar may be added according to taste.

SIMPLE BREAD PANADA.—Put a moderate quantity of grated or soft stale bread into enough boiling water to form a moderately thick pulp; cover it up, and leave it to soak for an hour—then beat it up with 2 or 3 tablespoonfuls of milk, and fine sugar to sweeten—boil the whole for ten minutes. This preparation is occasionally acceptable to the invalid, when milk dietary alone is rejected.

OATMEAL GRUEL.—One dessertspoonful of meal must be mixed smoothly with two of cold water—1 pint of boiling water poured on, and the whole boiled on the fire for ten minutes, well stirring for the time, then strain and add sugar, or pepper and salt, as may be agreeable to or proper for the sick person.

MILK FOR INFANTS.—Take of cow's milk and water equal parts, loaf sugar as much as may be agreeable. It is necessary, when children are to be raised by the hand, to dilute the milk. These proportions may be altered, as the child advances in age. The object is to make a diet as near the qualities of the maternal milk as possible.

SUET PTISAN.—Take of sheep's suet 2 ounces, milk 1 pint, starch $\frac{1}{2}$ ounce. Boil slowly for half an hour. This may be used as a common drink in dysentery.

BOILED FLOUR.—Take of fine flour 1 pound, tie it up in a linen cloth as tight as possible, and after frequently dipping it in cold water, dredge the outside with flour till a crust is formed round it, which will prevent the water soaking into it while boiling. It is then boiled about three hours, when it becomes a hard, dry mass. 2 or 3 teaspoonfuls of this may be grated and prepared with 1 pint of water or milk in the same manner as arrowroot, for which it forms an excellent substitute.

DIET FOR DIARRHŒA AND DYSENTERY.—The following is a useful preparation: Gum arabic, tragacanth, arrowroot, sago, tapioca, of each 2 drams. Mix them well together, and boil in 1 pint of milk, flavored with nutmeg or cinnamon. Used as a diet in dysentery, diarrhœa, etc.

CARRAGEEN MOSS.—One ounce of it, boiled in $1\frac{1}{2}$ pints of water, is sufficient to form a semi-transparent, moderately consistent, nearly tasteless jelly. This may be sweetened and acidulated with juice of lemon, or it may be eaten with milk. It forms an excellent diet for invalids who require to have the strength supported. The gelatine, now so commonly used, is a very palatable preparation, combined with either water or milk, and may be taken dissolved in tea, coffee, or broth, without impairing the flavor of one or other.

ICELAND MOSS.—Wash 2 ounces of the moss in some cold water, then boil slowly in 1 quart of water until it becomes thick, adding white sugar to suit the taste. Strain through a cloth and eat cold. Irish moss may be used in the same way.

GELATINE WITH MILK.—One ounce of gelatine is to be soaked in $\frac{1}{2}$ pint of cold milk; when softened, 1 pint of boiling milk stirred well with it, till it is quite dissolved, it may be sweetened to taste, and put upon the fire to boil up altogether. It may be flavored with lemon-peel, or cinnamon, or brandy, as is most liked, or most suitable. It will be quite solid when cold.

JELLY FROM GELATINE.—To rather more than 1 ounce of gelatine add $\frac{1}{2}$ pint of cold water to soften it, then pour over 1 pint of boiling water, and stir till the gelatine is dissolved; pare very thinly the rind of 1 lemon, and add, with the juice of 3 or 4—if acids are permitted—1 pound of loaf sugar, the whites and shells of 3 or 4 eggs, thoroughly well

whisked together, and stirred into the whole; let it come to the boil upon the fire without more stirring—if wine is ordered with it, it should be added after coming off the fire; pour it through a thick flannel jelly bag—what runs through at first will not be clear, and should be returned to the bag again; let it stand till cold, and you will have a clear, sparkling jelly, which few invalids will refuse.

PORT WINE JELLY.—Port wine may be given in the form of a jelly, according to the following excellent form: Take 2 ounces of isinglass, 1 ounce of gum arabic, 1 bottle of port wine, loaf sugar and spices according to taste. Let it simmer until it is perfectly dissolved. Then put it in a shape. To be eaten when cold, two or three times a day, in cases of great debility where port wine is ordered.

GLOUCESTER JELLY.—Take 1 ounce of sago, 1 of rice, 1 of pearl barley, and 1 of candied eryngo root; put them into a small pan, with 2 quarts of water; let it boil till it is reduced to 1 quart; strain it through a sieve, and give the patient 1 teacupful three or four times a day, with wine and lemon-peel if desired.

STRENGTHENING JELLY.—Take 2 calf's feet, well cleaned; put them into a jar; to which add 1 ounce of isinglass, 2 ounces of sugar candy, with 2 quarts of new milk. Then bake it with some bread over the jar. When done, strain it off, and take 1 teacupful, just warmed before the fire, twice or three times a day.

HARTSHORN JELLY.—Take of hartshorn shavings, 4 ounces; water, 1 quart; boil over a gentle fire until 1 pint of the water be dissipated. Strain, and add lemon-juice, sugar, and wine. This forms, either with or without the last-named ingredients, a very nourishing diet for convalescents; and, when mixed with an equal portion of milk, is well adapted to the bowel complaints of children. Isinglass or fish glue may be used instead of the hartshorn shavings, if preferred.

CALF'S FOOT JELLY.—Take 2 calf's feet and add to them 1 gallon of water, which reduce by boiling to 1 quart. Strain it, and when cold, skim the fat entirely off. Add to this the white of 6 or 8 eggs well beaten, 1 pint of wine, $\frac{1}{2}$ pound of loaf sugar and the juice of 4 lemons, and let them be well mixed. Boil the whole for a few minutes, stirring constantly, and then pass it through a flannel strainer. This forms a very nutritious article of diet for the sick and convalescent. The wine may be omitted or added at option.

MUCILAGE OF GUM ARABIC.—As an article of diet, the proper proportions are 1 ounce of gum arabic to 1 pint of boiling water. The solution is allowed to cool before it is used. Gum arabic is very nutritive, and life can be sustained on it alone for some time.

WINE WHEY is prepared by adding to 1 pint of fresh milk, as soon as it

reaches the boiling point, as much good Madeira or sherry as will coagulate it. The mixture is then strained and sweetened, or flavored for use.

VINEGAR WHEY.—Take of milk, 1 pint; vinegar, $\frac{1}{2}$ ounce; boil for a few minutes, and separate the curd.

TARTAR WHEY.—Take of milk, 1 quart; cream of tartar, $\frac{1}{2}$ ounce; boil until the curd separates.

RENNET WHEY.—Take of new milk, 1 quart; rennet, 1 large spoonful; heat the milk and then add the rennet. Boil until the curd separates and is all taken off. To many persons this forms a very agreeable nutriment.

MILK PUNCH is made by mixing good brandy or whiskey with cold, fresh milk, in the proportion of about 1 ounce, or 2 tablespoonfuls of the spirit to $\frac{1}{2}$ pint of the milk. Sugar and nutmeg may be added to make the mixture palatable.

EGG-NOG consists of 1 egg, the white and yolk of which are beaten up separately; $\frac{1}{2}$ pint of cold water or milk with a little loaf sugar is then added, together with 2 tablespoonfuls of brandy or whiskey.

LEMONADE.—The juice of 2 lemons, the rind of 1, added to 1 quart of boiling water, sweetened moderately, and kept in a covered jar, is a useful drink for those suffering from cold or slight fever.

INFUSION OF MALT.—Take of ground malt, 1 pint; scalding water, 3 pints; infuse for two hours, and strain off the liquor, to which may be added sugar or lemon-juice, if required. This was a favorite preparation with the late Dr. Jos. Parrish, in inflammatory fevers.

MILK AND SODA-WATER.—Heat, nearly to boiling, 1 teacupful of milk; dissolve in it 1 teaspoonful of fine sugar, put it into a large tumbler, and pour over it two-thirds of a bottle of soda-water. This is an excellent mode of taking milk when the stomach is charged with acid, and consequently feels oppressed by milk alone.

TOAST-WATER.—This simple beverage is seldom well prepared. Let the water with which it is made have been boiled and become cold. Toast thoroughly of a fine deep brown, but not black, a slice of bread about six inches square; put it into a pitcher, and pour 1 quart of the water over it; let it stand one hour, and decant the water from the bread. A small piece of either orange or lemon-peel added with the bread is an improvement to toast-water.

LINSEED-TEA.—One ounce of linseed, not bruised, two drams of liquorice-root, bruised; pour over 1 pint of boiling water; place the pitcher—covered pitchers with perforated spouts should always be used for drinks for sick people—near the fire for three or four hours, then strain off. When linseed-tea is ordered to be continued, it should be made fresh every day.

SAGE TEA.—Take of dried leaves of sage, $\frac{1}{2}$ ounce ; boiling water, 1 quart ; infuse for half an hour and then strain. Sugar and lemon-juice may be added in the proportion required by the patient. In the same manner may be made balm and other teas. These infusions form very agreeable and useful drinks in fever, and their diaphoretic powers may be increased by the addition of the sweet spirits of nitre or antimonial wine.

DECOCTION OF BRAN.—Take of fresh wheat bran, 1 pint ; water, 3 quarts ; boil down one-third, strain off the liquor, and add sugar, honey, or molasses, according to the taste of the patient. Bran tea may be made by using boiling water, and suffering the mixture to stand in a covered vessel for three or four hours.

DECOCTION OF BARLEY, OR BARLEY-WATER.—Take of pearl barley, 2 ounces ; boiling water, 2 quarts. Before adding the boiling water, let the barley be well washed. Then boil it to one-half and strain the liquor. A little lemon juice and sugar may be added if desirable. To be taken at pleasure in inflammatory diseases. (See the article **BARLEY-WATER**.)

RICE WATER.—Take of rice, 2 ounces, let it be well washed, and add to it, water, 2 quarts. Boil it for an hour and a half, and then add sugar and nutmeg as much as may be required. To be taken at pleasure.

CHOCOLATE.—Chocolate should be suffered to stand until cold, after having been made in the usual way. The oily parts thus collect on the surface and should be taken off. The liquid should then be boiled again, and sugar, etc., added.

ESSENCE OF BEEF.—Take 1 pound of lean beef, free from skin and fat ; chop it up ; put it into a glass fruit jar with a cover ; plunge it into a saucepan, and let it boil for two hours ; then pour off the liquid essence ; and the coagulated muscle, which has been made to shrink and express its juice by the heat, will be found below in a state useless for food ; let the essence stand till cold, and skim off the fat. This will be found most palatable and supporting, and will be retained by the stomach when almost everything else is rejected. It may be eaten cold, in a jellied state, with chicken, etc. It is invaluable in cases of intense debility, in chronic vomiting, sea-sickness, and every ailment where it is desirable to supply nutriment in the most concentrated and digestible state. Any other meat, fowl, or game may be treated in the same way as above.

Another excellent method, though inferior to the above, is as follows : Take 1 pound of lean beef, mince it fine, and add to it 1 pint of cold water. Place it in a pot by the side of the fire, so that it may heat very slowly. Let it stand two or three hours before it is even allowed to sim-

mer, and then let it boil gently for fifteen minutes. Skim off all the fat. Mutton or veal broth may be made in the same way, and to all of these, if desired, a few ounces of rice or arrowroot may be added as thickening.

There is a good method of making essence of beef with vegetable juice: Take slices of lean beef, free from fat and skin, and slices of turnips pared. Lay them alternately in a glass fruit jar, so as to exclude water and air; then put the jar into a large vessel full of water, and let it boil two or three hours. Half a cupful of this very strong essence may be given at a time to a delicate person, or a smaller quantity of it may be given to a child.

BEEF-TEA.—Take of lean beef, cut into shreds, 1 pound; water, 1 quart. Boil it for twenty minutes, taking off the scum as it rises. After it grows cold, strain the liquor. This preparation is more nourishing than ordinary broths, and very palatable. For Prof. Liebig's, and other methods of making beef-tea, see the article BEEF-TEA.

STRONG VEAL BROTH.—Take 2 pounds of veal, free from fat, and $\frac{1}{4}$ pound pearl barley. Boil them till they become like a cream, and can pass through a sieve. It may be taken warm or cold, with salt.

CHICKEN BROTH, with every particle of fat or grease carefully taken off by blotting paper when hot, may be drank cold or iced, and will at times be retained when the stomach rejects everything else, especially in sea-sickness, or the sickness of pregnancy. It should be seasoned with a little salt, and taken from a glass feeder, when the patient is lying down. It is a refreshing and supporting drink even in cases of fever, and should be given quite cold or iced, not lukewarm.

MUTTON BROTH.—Take 1 pound of lean mutton, put it into 1 quart of water; salt to taste: boil over a slow fire to half the quantity, skimming well; put in a little pearl barley or rice. May be given with dry toast, or the toast may be broken in. Veal, beef, chicken, or any other broth may be made in same way.

CONCENTRATED FOWL.—Take an old fowl, split it, and wash it thoroughly till all traces of blood have disappeared, then put it into a stewpan, add 3 pints of water, let it stew in the pan till the meat comes off the bones, and the water is reduced to 1 quart.

CHICKEN PANADA.—Cut up a chicken or young fowl, take off the skin, put it into a stewpan with 1 tablespoonful of water, and cook on a slow fire. When the chicken is hot through, put in a teacupful more water. Stew it for half an hour or longer, till quite tender. Take the meat off the bones, pound it well in a mortar, and rub it through a sieve. Use the gravy to moisten the meat in the mortar.

TOASTED MUTTON.—Cut slices as thin as possible from the prime of a fresh loin of mutton, toast them with a toasting-fork before the fire.

It is very light of digestion when prepared after this most simple fashion.

POUNDED MEAT.—Take a piece of raw mutton, quite free from skin and fat; cut it into small pieces, and pound it in a mortar. Then put it into a saucepan, and warm it over the fire for ten minutes or less in its own gravy (of course without water). If too dry, add 1 spoonful of clear gravy (not stock), or a little beef-tea. It should be served very hot.

(See CONVALESCENCE, DIET, FOOD; BED, BED-ROOM; SICK-ROOM, SAGO, BEEF-TEA, BARLEY WATER, ETC.)

COPAIBA, OR COPAIVA. (See BALSAM OF COPAIBA, COPAIFERA.)

COPAIFERA, *ko-pa'-fe-ra* [from *copaiba*, the Brazilian name, and Lat. *fero*, I bear], a genus of plants belonging to the Nat. order *Leguminosæ*. The species are natives of tropical America, and several yield the valuable oleo-resin which is used in medicine under the name of *balsam of copaiba*. This is obtained by making incisions into the stems of the trees. Most of the *copaiba* of commerce is brought from the Brazils, a very little being imported from Guiana and the West Indian islands. This is about the consistence of olive-oil, light yellow, transparent, with a peculiar odor, and an acrid aromatic taste. It is used as a stimulant of mucous surfaces generally, particularly of the urinary passages. It is a valuable remedy in gonorrhœa. Dose, from 10 to 30 drops. The oil of *copaiba*, obtained by distillation from *copaiba*, is given in doses of 5 to 20 drops. (See BALSAM OF COPAIBA.)

COPPER, *kop'pur* [Lat. *Cuprum*, from Cyprus, Gr. *Kypros*, the name of the island where it was first worked on an extensive scale], in Chemistry, symbol Cu, equivalent 31.75, specific gravity 8.921 to 8.952. It was called *Venus* by the alchemists, who gave to it the symbol of that planet. Copper is a hard, sonorous, ductile, and malleable metal, of a characteristic reddish-brown color. Very thin films have been obtained, which were of a beautiful green color by transmitted light, although of the natural color by reflected light. It is one of the best conductors of heat and electricity, and expands one part in 582 between the freezing and boiling points of water. The melting point of copper is 1996° Fahr.; and by exposing it to a very intense heat, it boils and volatilizes, burning with a brilliant green flame. Heated to redness in the open air, copper combines rapidly with oxygen; but even moist air at ordinary temperatures has but little effect on it. In sea-water it becomes gradually corroded by the formation of an oxychloride of copper. The uses of copper are very important. With zinc it forms brass, and with different proportions of tin it forms bronze, bell-metal, gun-metal, and speculum-metal. Its oxides and salts are largely used as pigments and in phar-

maceutical preparations. Copper unites with oxygen in four proportions: 1. The *sub-oxide* or *dioxide*, Cu_2O . 2. The *protoxide* or *black oxide*, CuO . 3. The *binoxide*, CuO_2 . 4. *Cupric acid*, the composition of which is not known. The salts of copper are characterized by their green or blue color. They are nearly all soluble, and have a strong, disagreeable, metallic taste, acting as poisons on the human system. In Medicine, sulphate of copper (better known by the name of blue vitriol) strongly resembles that of zinc in its action. Internally it acts as an astringent, tonic, and antispasmodic in doses of $\frac{1}{4}$ to 2 grains; and is used in dyspepsia and in Asiatic cholera. In doses of from 5 to 10 grains it acts as an emetic. It is also used as an outward application to wounds which present the granulated appearance known as "proud flesh." A mild solution of it is also used externally as an astringent lotion. The symptoms of poisoning by copper are violent and irrepressible purgings and vomitings, cramps in the limbs and severe pain in the bowels, followed by exhaustion and death. The matters ejected are tinged with the blue color of the poison. The best antidote is albumen, or white of egg, with which they form an insoluble and almost inert compound. In a case of poisoning by a salt of copper, the object must, of course, be to get the stomach freed from it as quickly as possible. Its own emetic action should be assisted by warm drinks, warm water, or milk, or mucilaginous drinks of some kind, such as linseed-tea, or barley-water; sugar has been found useful in these cases as an antidote, and should be added in good quantity to the fluids which are administered. After the stomach has been well cleared by the vomiting, raw eggs should be given largely, and if vomiting does not recur, which it probably will, it should be re-induced by putting a feather down the throat, or by the administration of a scruple of white vitriol in a little water. Of course medical assistance should be obtained, but the above measures may advantageously be had recourse to in the interval. When poisoning by copper occurs in consequence of its presence in food which has been prepared improperly, or in badly cleaned copper vessels, the amount of the poison may not be sufficient to occasion death, but it produces severe symptoms similar to those above detailed. Copper vessels, unless protected by tinning, and even then, unless the protection is in a perfect state, cannot be considered desirable cooking utensils, and when they are used, the strictest cleanliness is requisite for safety; even if water is allowed to stand in a copper pan for any length of time, a poisonous salt is formed, but if the water contains an acid of any kind, such as vinegar, if it holds common salt in solution, or if there be oily or fatty matter present, poisonous compounds are quickly formed, consequently, food which contains any of

these ingredients should never be prepared in copper vessels; the same objection, of course, holds good as regards preserving fruits, which all contain more or less acids, and are therefore liable to act upon copper. There is, however, less danger as long as the active operations of cooking are going on, than there is from allowing the articles above enumerated to stand for any length of time in a copper utensil, freely exposed to the air. Many of the cheaper green pickles contain copper, which is added to them to make the color appear finer. Its presence may be readily detected by burning the suspected article, washing the ashes in water, and filtering. If, on the addition of liquid ammonia, the solution strikes a deep blue color, copper is present. It may be also detected by introducing a perfectly clean plate of iron—a table knife—into the suspected article; if copper is present, it will be deposited upon the surface of the former metal, in the form of a fine metallic film or coating. It should be remembered that the majority of the green coloring matters and paints at present in general use, are compounds of copper, and, therefore, care should be observed in permitting children to have access to them. A child has been poisoned by a cake of green paint from a toy color-box. Copper coins are sometimes swallowed by children, and may pass away by stool without any apparent bad consequences; but this is not always the case, and severe epileptic fits have ensued in consequence of the accident. In the event of a child being known to have swallowed a piece of copper; salt, acids, and fatty matters should be excluded from its food, which ought to consist of thick milky preparations, such as hasty pudding and the like, well sweetened with sugar; gentle doses of aperients being administered. The thickened food should be given as soon as possible after the accident.

COPPERAS, *kop'-pur-as* [from German *kupper-wasser*, copper-water]. This term is applied with the prefixes blue, green, and white, to the sulphate of copper, iron, and zinc respectively; also called blue, and green, and white vitriol.

COPTIS TRIFOLIATA, *kop'-tis tri-fo-le-a'-ta*, gold thread, a small evergreen plant, belonging to the Nat. order *Ranunculaceæ*. It grows in wet, boggy situations, in the Northern and Middle States and Canada. The root is the part used in medicine. It is a pure, bitter tonic, very much resembling quassia in its properties, and is used when a simple bitter tonic is required. It is also used with benefit as a local application in aphthous sore mouth, and as a gargle in ulcerated sore throat. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; decoction, 1 to 4 fluid ounces, to be taken three or four times a day. (See DECOCTION.)

CORDIALS, *kord'-yalz* [Fr. and Sp. *cordial*, from Lat. *cor*, the heart,] are stimulants generally of an alcoholic nature; the name is

derived from the old idea that they “strengthened the heart.” They certainly stimulate the circulation, and are useful in cases of depression from any cause, where such an effect is required. Brandy is, perhaps, as good and as generally attainable a cordial as any; the compound tincture of cardamoms, and the aromatic spirit of ammonia, constitute two of the best medicinal cordials. (See EXCITANTS; STIMULANTS, ALCOHOLIC.)

CORIANDER. (See CORIANDRUM.)

CORIANDRUM, *ko-re-an'-drum* [from Gr. *koris*, a bug, in allusion to the smell of the leaves], in Botany, a genus of plants belonging to the Nat. order *Umbelliferae*. The species *C. sativum*, the coriander, has long been cultivated for its fruits, improperly called seeds, which are used in the East for flavoring dishes and curry powder, and in Europe for the purposes of the distiller, confectioner, and pharmacist. They have a peculiar odor and warm aromatic taste, due to the presence of a yellowish-colored volatile oil, and are stimulant, carminative in their nature, but are chiefly employed as an adjunct to other medicines, as in tincture and syrup of rhubarb, tincture and confection of senna, etc. An oil is distilled from the fruit, called oil of coriander. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; oil, 10 to 20 drops.

CORNEA, *kor'-ne-a* [Lat. *cornu*, a horn], is a name given to one of the coats of the eye, from its being of a horny consistence. (See EYE.)

CORN-MEAL, CORN-BREAD, *korn'-meel* [Ang.-Sax.] Corn-meal is a popular article of diet in this country. It is very wholesome, either used as corn-bread or porridge. It possesses both aperient and fattening properties, and no fermentation is required to make good bread. It is not, however, so easily digested by some as wheaten bread. (See FOOD, BREAD, ETC.)

CORNS, *kornz* [Ang.-Sax.], are certain small, hard, troublesome excrescences on the feet, arising from a thickening of the cuticle or epidermis, and owing generally to irritation, caused by excessive pressure or friction on the part. Corns are of two kinds, hard and soft, the latter being situated between the toes. Frequently a bursa or bag is formed beneath the corn, which is apt to inflame and cause great pain and irritation. In the treatment of corns, the great object is to remove all undue pressure or friction; and for that purpose the boots or shoes should be easy and pliant. This will be still further effected by protecting the corn with a small piece of thick soft leather, spread with diachylon or other emollient plaster, and having a hole in the centre corresponding with the size of the corn. The feet should also be frequently bathed with warm water, and as much as possible of the corn carefully pared away, care being taken not to wound the more sensitive part. If the

corn is very sensitive, it ought to be occasionally touched with lunar caustic; and if much inflamed, a warm bread poultice should be applied to it. Tight shoes are undoubtedly the most general originators of corns, but badly-made, ill-fitting ones, also give rise to the affection—not by pressure but by friction. Soft corns generally form between the toes, and are very troublesome and painful: they are kept soft by the continued perspiration of the part.

The most efficient cure for corns is, of course, to get rid of the cause—the offending boot or shoe—but as some persons are so liable to the affection, or have their feet so formed, that if they wear boots or shoes at all they must suffer from corns; the best palliative is keeping the hardened mass well pared down in the centre. Vinegar, or strong acetic acid, applied to a corn every evening, will sometimes effect a cure, a little olive-oil being smeared over every morning. Various corn-plasters are used, the most effective and rational are those which are made thick, and have a hole cut in the centre for the corn, which is thus preserved from pressure. Soft corns should be cut with scissors; a piece of linen should be worn between the toes, and the strictest cleanliness observed. A peculiar kind of corn occasionally forms under the corner of the nail of the great toe, and causes much pain and irritation, if discovered by slightly elevating the nail, the thickened mass may be turned out.

The following recipe makes a good corn-plaster: $\frac{1}{4}$ pound of yellow wax, $\frac{3}{4}$ ounce of Burgundy pitch, 1 ounce of turpentine, and $\frac{1}{2}$ ounce of powdered verdigris. Mix these over the fire; spread the composition upon linen or leather, and when cold, cut off the plasters the size required.

We also add a corn solvent (Sir Humphrey Davy's recipe): 2 parts potash, 1 salt of sorrel. Mix these in a fine powder; cover the corns with some of the powder for four successive nights, binding it on with rag. (See FOOT.)

CORN-STARCH. (See COOKERY FOR THE SICK.)

CORNUS FLORIDA, *kor'-nus flor'-e-da*, dogwood, boxwood, a small tree belonging to the Nat. order *Cornaceæ*. It grows in swamps and moist woods in various parts of the United States and Canada. The bark, which is the part used in medicine, has an astringent and slightly aromatic taste. It is a tonic, astringent and stimulant. It increases the force of the pulse, and elevates the temperature of the body. It has been successfully used as a substitute for cinchona in the treatment of intermittent fever, and may also be used with advantage in typhoid and typhus fevers. Dose: powdered bark, 20 to 30 grains; infusion, 1 to 2 ounces (see INFUSION); fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls.

The doses may be given every three or four hours. A solid extract may be made by boiling the bark in water and evaporating to the proper consistence, 5 to 10 grains of this may be given three times a day. The ripe berries made into a tincture with brandy or whiskey is a popular bitters in many families. The flowers are sometimes used in the place of chamomile. The *cornus circinata*, or round-leaved dogwood, and the *cornus sericea*, or swamp dogwood, are used in the same cases, but their properties are not so powerful as the *Cornus Florida*.

CORPULENCE, *kor'-pu-lense* [Lat. *corpulentia*, from *corpus*, the body], is an undue bulkiness or size of the body, arising from an excessive accumulation of fat in certain parts. It is impossible to define exactly the limit beyond which the body can be said to be corpulent, depending as it does, very much upon the general habit and the state of health of the individual. It most commonly takes place after the age of forty, but is not confined to any particular period of life, being to be found also in childhood and youth. The causes of corpulence are both natural and acquired. There are some persons who have a natural tendency to corpulence; in others it may be induced by modes of life, indolent and sedentary habits, and the use of certain kinds of food. The undue accumulation of fat produces a variety of effects, interfering with the vital energies of the body, and incapacitating for exertion. The chances of life are not so great among persons of a corpulent habit as among those of a normal condition. All sudden or violent measures to get rid of corpulence are attended with harm; and not the least dangerous is the popular remedy of vinegar, which has the effect of destroying the digestive powers. Attention to diet, and the avoidance of such articles as tend to generate fat, together with active exercise, and the counteracting of indolent habits, are among the best means that can be employed. Dr. Chalmers, in his small treatise "On Corpulence," gives a variety of cases in which *liquor potassæ* was used with great effect, in doses of $\frac{1}{2}$ to 1 teaspoonful, three times a day in milk and water, but this remedy should not be resorted to without the sanction of a medical adviser. Mr. Banting has published an interesting pamphlet on this subject, in which he records the beneficial effects which he experienced from the following course of diet: Breakfast, 4 or 5 ounces of beef, mutton, kidneys, broiled fish, bacon, or cold meat (except pork); a large cup of tea without milk or sugar, a little biscuit, or 1 ounce of dry toast. Dinner, 5 or 6 ounces of any fish except salmon, any meat except pork, any vegetable except potato, 1 ounce of dry toast, fruit out of a pudding, any kind of poultry or game, and 2 or 3 glasses of good claret, sherry, or madeira; champagne, port, and beer forbidden. Tea, 2 or 3 ounces of fruit, 1 or 2 rusks, 1 cup of tea without milk or sugar.

Supper, 3 or 4 ounces of meat or fish, and 1 or 2 glasses of claret; bread, butter, milk, sugar, beer, soup, potatoes, and beans were forbidden. The result of this was a gradual reduction of weight from 202 to 156 pounds. There are numerous very remarkable cases of corpulence on record. Of modern instances was Bright, of Maldon, in Essex, England, a respectable tallow-chandler and grocer, who died on the 12th of November, 1750, in the twenty-ninth year of his age. He weighed 616 pounds, and it is said that seven persons of ordinary size could be enclosed in his waistcoat. Daniel Lambert, who is supposed to have been the heaviest man that ever lived, died at Stamford, in Lincolnshire, England, at the age of forty, on the 21st of June, 1809. He is said to have weighed 52 stone 12 pounds, or 740 pounds. (See FUCUS VESICULOSUS, FAT, FOOD, DIET, EXERCISE, REGIMEN, ETC.)

CORPUS, *kor'-pus* [Lat. body], is a term applied in Anatomy to certain parts of the animal structure; as the *corpus callosum*, the *corpora quadrigemina*. (See BRAIN.)

CORPUSCLES OF THE BLOOD. (See BLOOD.)

CORROSION, *kor-ro'-zhun* [Sp. and Fr. *corrosion*]. The term, when applied to the living body, means the gradual destruction of any of its tissues by chemical action.

CORROSIVE SUBLIMATE. (See MERCURY.)

CORSETS. (See EDUCATION, CHEST, ETC.)

CORSICAN MOSS. (See GRACILLARIA.)

CORYDALIS FORMOSA, *kor-e-dal'-is for-mo'-sa*, Turkey corn, a perennial plant belonging to the Nat. order *Fumariaceæ*. It grows from six to ten inches in height, in rich soils, all over the Middle States, and is known by the common names Turkey-pea, fumitory, and stagger-weed. The root is the part used in medicine, and it owes its activity to the presence of a principle called corydalin. It possesses tonic properties similar to the columbo and gentian, and is a valuable remedy in syphilitic and scrofulous affections, and in many cutaneous diseases. It is also reported very serviceable in dropsy, gravel, catarrh of the bladder, and incontinence of urine. Dose: of the fluid extract, 10 to 40 drops; corydalin, $\frac{1}{2}$ to 1 grain, three or four times a day. It may also be used in decoction, 1 to 2 ounces, three times daily. (See DECOCTION.)

CORYZA, OR COMMON COLD. (See CATARRH, OR COMMON COLD.)

COSMETIC, *kos-met'-ik* [Gr. *kosmeo*, I adorn], is a preparation used to whiten or soften the skin, or otherwise to beautify and improve it. With the ancient Romans the term *cosmetæ* was applied to those slaves who were employed to dress and adorn their mistresses. Cosmetics are indirectly injurious, by leading the mind from the only true

cosmetics, obedience to the laws for the maintenance of physical health, which the Almighty has linked with our existence. Cleanliness, temperance, abundant fresh air and exercise, and early hours, and the cheerfulness which results from the healthful occupation of the mind in legitimate pursuits, are cosmetics which no art can imitate or supply. If, as is too often the case, mineral and metallic substances form the bases of them, they cannot fail to be attended with harm to the skin, in the first instance, and afterwards to the general health. Vegetable preparations are the least injurious; but even these, if used at all, must be used with moderation. The following makes a good cosmetic: Pound a lump of benzoin and put it into a decanter, which fill with spirits of wine 60° above proof; as soon as the balsam is dissolved, add more, until the alcohol is fully saturated. A few drops of this tincture, in either pure water or rose-water, make an admirable wash for the face. (See COMPLEXION.)

COSTIVENESS, OR CONSTIPATION, *kos'-tiv-nes* [From Lat. *constipo*, to press closely together], is undue retention of the faecal contents of the bowels, and their evacuation in a harder and drier condition than natural. The state is one, in great degree dependent upon habit and constitution, for that which would be considered constipation in one person, would not be so in another, and *vice versa*. As a general rule, however, the bowels ought to relieve themselves thoroughly, once in the twenty-four hours, when such is not the case, the condition may be said to be one of costiveness.

With some individuals, a single evacuation of the bowels, once every three or four days, and even less often, seems to be sufficient, and perfectly compatible with their enjoyment of perfect health, and when such is the case, it is of course superfluous to endeavor to correct it, and it is better to let well alone. If, however, in conjunction with this condition of the bowels, the person suffers from headache, from languor, from distention of the abdomen, if the breath is disagreeable, and the tongue furred, the state is not compatible with health, and should be corrected.

Causes.—The causes of costiveness are very numerous, the nature of the food, as might be expected, exerts considerable influence; bread badly made, and especially if alum be mixed with it, cheese, milk with some persons, farinaceous articles such as arrowroot or ground rice, and food of too concentrated a character, all tend to constipate. Deficient exercise, particularly if combined with much exertion of mind; any drain upon the system as in suckling, abundant perspirations, loss of nervous power, and old age, have the same effects. Pregnancy, and tumors in the abdomen, constipate by mechanical obstruction, and in the same

way, contraction of any portion of the alimentary canal. The colon or large bowel is very frequently the seat of the constipation, it loses tone, allows itself to be distended, sometimes to an enormous extent, or contracts to a very narrow calibre in some portion of its course. Lastly, a very common inducing cause of costiveness, particularly in females, is inattention to the intimation of nature to relieve the bowels.

Treatment.—As, except in the case of a few persons of constitutional peculiarity, confined bowels cannot be compatible with health, comfort, or activity of either mind or body, the state must be rectified, and that in a proper manner, not as it is usually attempted. Perhaps there is no ailment to which the human body is subject, which is more frequently mismanaged than constipation. Every effort should be made to correct the disorder without the aid of medicine. In the food, all those articles which have been enumerated, or which are known to constipate, must be avoided; the bread used should be made of coarse flour; if vegetables and fruits agree in other respects they may be freely consumed, and cocoa substituted for tea or coffee; food is not to be taken in a state of too great concentration, but so that by the bulk of its refuse it may afford substance to stimulate the action of the bowels. In addition, there are various articles of diet which exert an aperient effect, and which may be used or not according to the taste of the person, such as oatmeal in the form of porridge, honey, prunes, etc. Exercise, whether on foot or horseback, is another valuable aid in the removal of the costive state; it not only quickens all the functions, but it assists by the mechanical motion it communicates to the intestines; a similar effect may, in some cases, be produced by friction or kneading the abdomen with the hand; the practice is scarcely so much resorted to as it might be. Another very important point is regularity in the time of evacuating the bowels; not waiting for the urgent sensation, but retiring for the purpose at one set period of the day, when time can be given. Persons who are liable to costiveness should give themselves at least a quarter of an hour, or even longer for the daily evacuation of the bowels. Lastly, as constipation is so frequent an attendant upon the sedentary life of the student, and upon the anxious-minded man of business, a holiday both from books or desk, and change of air and scene, is both a good and pleasant remedy.

When neither diet nor regimen will effect the cure, other means must be had recourse to. If there is simple costiveness, without disorder of the digestive functions, the best remedy will be the regular use of some simple clyster or injection; if on the other hand, furred tongue, with acidity of stomach, flatulence, pain between the shoulders, headache, etc., betoken deranged digestion, medicine will be required, at all events

in the first instance; the liver is probably at fault, and 5 or 6 grains of blue pill, or of compound colocynth and calomel pill, followed in the morning by the black draught, or by castor-oil, will be requisite to commence the treatment. When the stomach, liver, and upper bowels have been well cleared by the above medicines, it is requisite to keep the bowels open, otherwise a few days will see all the symptoms returned, and, in fact, such is too often the case; persons are content with taking a dose of strong opening medicine every few days, or once a week, as the case may be, and rest content with thus, as it is called, having a good clearing out—albeit they are under the necessity of increasing the strength of the doses. The practice is one incompatible with sound health, and is most injurious to the stomach and bowels themselves; many cases of obstruction, and even inflammation of the bowels are produced by it. The principle to be proceeded upon in the treatment of costiveness is, that it is more easy to keep the bowels in action than to excite them to it when they have become thoroughly torpid, and therefore the individual should not rest content without the daily evacuation. As has been said above, if simple constipation, depending upon inaction of the lower bowel, exists, the use of the injection will in all probability be sufficient; but medicine may be required, perhaps daily, for some time; or it may be used alternately with the clyster or injection. Some medicines are more than others adapted to the treatment of habitual costiveness, and of these castor-oil, aloes, alone or in its combinations, senna, and ipecacuhana are the principal, their great advantage is not losing their effect by continued use. When castor-oil can be taken regularly, in most cases it answers extremely well, and if taken regularly, the dose requires rather diminution than increase; it is a medicine, moreover, which never seems to injure the tone or the mucous coat of the bowels. In the constipation of pregnancy, castor-oil is so well known as the best and safest aperient that it scarcely requires mention. Aloes is peculiarly well adapted to relieve certain forms of costiveness, particularly that of the sedentary, and may be taken in the form of pill, in combination with soap, in the compound rhubarb pill or compound colocynth pill; any of these are most excellent combinations. If there is debility of stomach, the addition of $\frac{1}{4}$ or $\frac{1}{2}$ grain of quinine to each pill increases the efficiency of the medicine and gives tone to the stomach. The quinine must not be continued for more than a fortnight at a time. The dose of aloes when regularly taken does not require to be augmented. When quicker action is required, the compound decoction of aloes may be taken with advantage instead of pills. The principal objection to the use of aloes is the occurrence of piles, which, if inflamed, or if the dose be too strong, are apt to be aggravated by the

medicine, in this case, castor-oil, or infusion of senna, or the injection, should be substituted, for a time at least. In some cases, on the other hand, when the piles are not inflamed, aloes taken regularly in small doses, seems to exert a beneficial and curative action upon them; probably in consequence of keeping the intestinal veins from becoming overloaded with blood. Senna, either in infusion or electuary, is a medicine well adapted for the relief of costiveness; it is perfectly safe, and does not seem soon to lose its effect. Ipecacuanha, not alone, but in $\frac{1}{4}$ or $\frac{1}{2}$ grain doses, especially when added to the aloetic pills, exerts a most beneficial effect in cases of habitually confined bowels. A weak solution of Epsom salts, 1 dram to the $\frac{1}{2}$ pint of water, with or without the addition of 5 or 10 drops of dilute sulphuric acid, when taken on first rising in the morning, will prove effectual with some, and forms a change from the use of the other aperients. Again it is repeated; keep the bowels free, by food, by exercise, by habit, if possible, by injections or medicines, if necessary; but do not let them become costive.

In some individuals, in whom the walls of the abdomen are very flaccid, and do not afford sufficient tonic support to the contained bowels, costiveness frequently exists, and is much remedied by the use of an elastic or other belt, worn to support the entire belly.

The medical students of Paris were recently not a little surprised to receive a lecture from Professor Trousseau, one of the most distinguished medical men in the world, upon such an ordinary and commonplace subject as constipation of the bowels. The learned professor gave it as the result of his extended experience, that costiveness was a habit which could in nine cases out of ten be entirely overcome by the practice of evacuating the bowels every day at the same hour, and he maintained that he had cured numerous cases, simply and solely by directing attention to be paid to this particular. There can be very little doubt of the truth of this axiom, and, indeed, it has been proved in the experience of many, that they could distinctly refer the occurrence with them of a constipated condition of the bowels, to something which has interfered with the daily custom or habit. Hence it is a point of great importance to attend to in the construction of dwelling-houses, that there should be no hindrance or difficulty experienced by even the most sensitive in these respects.

In the treatment of costiveness the following pill is often especially useful, but it should not be persevered in for more than ten days at a time, and its use not renewed until after an interval of ten days. During this interval, the ordinary colocynth, or compound rhubarb pill may be taken.

Take of Extract of *nux vomica*. Two grains.

Compound colocynth pill. Forty grains.—*Mix.*

Divide into 12 pills, and take 1 or 2 at bedtime.

The following electuary was recommended by the late Dr. Graves, and would, probably, suit persons of weak habit :

Take of Senna confection.....	Two ounces.
Cream of tartar.....	Half an ounce.
Carbonate of iron.....	Quarter of an ounce.
Syrup of ginger sufficient to make an electuary.— <i>Mix.</i>	

Dose, 1 small teaspoonful at midday and bedtime. In some cases $\frac{1}{4}$ ounce of sulphur may be added. Podophyllin is a valuable addition to our remedies in the treatment of costiveness. (See ALIMENTARY CANAL, MINERAL WATERS, ALOES, CLYSTER, PODOPHYLLUM, CATHARTICS, DIET, HEALTH, EXERCISE, DIGESTION, DYSPEPSIA, ETC.)

COTO BARK, *ko'-to*. This is a new remedy lately introduced from Bolivia. It is said to be almost a specific in the various forms of diarrhoea, and is highly recommended in dysentery, cholera morbus, colic, gastric catarrh, rheumatism and gout. Dose, of the fluid extract, 1 to 3 drops, from four to six times a day.

COTTON, *kot'-tn*, is a soft downy fibre obtained from the seed capsules of the cotton-plant, a species of gossypium. In its manufactured state, as calico, it is useful for many purposes, such as bandages, etc., in medical practice. The use of cotton cloth in the treatment of sores is generally considered to be more likely to irritate than linen, but the difference, if there is much, is greatly exaggerated. The cause has been said to be in the different form of the constituent fibre; that of the cotton, as seen under the microscope, being flat; that of the lint round. Much of the manufactured lint consists of cotton alone or mixed with flax. It has been thought that the flat sharp (?) edges of the cotton fibre were the irritating agents. The use of the sheet cotton in the form as used for wadding dresses, is a most invaluable application in burns. It is also sometimes used to dress blisters. (See LINT, BURNS, ETC.)

COTTON-ROOT. (See GOSSYPIMUM.)

COUCH GRASS. (See TRITICUM REPENS.)

COUCHING, *koutsh'-ing*, is an operation performed upon the eye, by which the lens, when it has become opaque from disease, is shifted or depressed to another part of the interior of the eyeball, and thus removed from the axis of vision, which it obstructs. (See EYE.)

COUGH, *kof*, consists in the violent expulsion of air from the lungs through the air-passages. In most cases it must be regarded rather as a symptom of disease than as a disease itself. It may be a symptom of bronchitis, catarrh, croup, influenza, whooping-cough, laryngitis, consumption, pleurisy or pneumonia (all of which see).

Causes.—Cough may arise from a great variety of causes. From direct irritation of the air-tubes themselves by the inhalation of cold and

damp air, or of irritating vapors, by the mechanical irritation of foreign substance accidentally introduced into them, by the pressure of tumors, or by irritation of the throat and fauces, particularly when there is relaxation of the uvula, and also in consequence of disease, inflammatory or otherwise, of the lungs themselves. Further, cough may be sympathetic with disorder in the stomach, or liver, or with irritation in the bowels, occasioned by worms or other irritant agents; or it may be the result of nervous derangement, such as hysteria; or be spasmodic, like whooping-cough. So numerous are the ailments and diseases of which cough is a symptom, that it frequently requires considerable discrimination to determine the real cause of the irritation. Many of the acting causes are undoubtedly trivial, but many are deeply seated and fatal diseases, and therefore, whenever an individual becomes the subject of cough, which cannot be readily accounted for by cold or some other direct cause, a medical examination ought to be submitted to, and even if the cough has been in the first instance the result of cold, should it continue "hanging about" a person, without obvious reason, medical advice ought to be taken; mischief may be brewing, and be the cause of the irritation, or the cough excited by some trivial and easily remedied cause, may itself be causing disease in the lungs of a predisposed person.

Cough is spoken of, both medically and popularly, as dry and moist. A dry cough may be the result of direct temporary irritation of the air-passages, but more generally it is symptomatic either of incipient disease connected with the chest, or of sympathetic nervous irritation probably connected with the abdominal viscera. Moist cough is generally connected with direct affections of the chest, such as common catarrh, and with inflammatory affections, or with asthma or consumption.

Treatment.—It has already been said, that a cough should never be allowed to continue for any length of time without the cause being ascertained by medical examination; till this is done, it can scarcely be expected that the proper remedy can be applied. In the first instance, however, simple remedies may be tried. If the cough be clearly traceable to cold or catarrh, it may be treated according to the directions given under these heads; if it be very dry, demulcent medicines, such as the mucilage and tolu mixture, or barley-water, or linseed-tea, may be taken freely, with from 5 to 10 drops of ipecacuanha wine two or three times a day, to which may be added 15 or 20 drops of tincture of henbane to allay irritation. Opium and its preparations are not generally desirable in dry cough—unless, indeed, it be spasmodic—as the drug itself exerts a drying effect upon the mucous membrane of the lungs. The inhalation of the steam from boiling water is sometimes

highly beneficial. In dry, and also in moist cough, counter-irritation by blisters, on the anterior part of the chest, or between the shoulders, is often of much service. The surface of the chest should be well protected by flannel next the skin, by a dressed hare-skin, or by a warm plaster, either in front or behind. In moist coughs, the amount of fluids, and of demulcents, must be somewhat more restricted than in the above. The preparations of opium may be given in small quantity, either alone or in cough mixtures, but none answers better than paregoric, taken in 1 or 2 teaspoonful doses in water; this allays the irritation and teasing frequency of the cough; and to each dose, if expectoration is difficult, 5 or 10 drops of ipecacuanha wine, and the same of tincture of squill may be added. The author has found the following pill most extensively useful in coughs depending upon irritation in the bronchi or air-passages:

Take of Powdered opium.....	Five grains.
“ squill.....	Sixteen grains.
“ ipecacuanha.....	Twelve grains.
“ camphor.....	Eighteen grains.
“ gum ammoniac.....	Twenty-four grains.
“ rhubarb.....	Twelve grains.— <i>Mix.</i>

Make into a mass with syrup, and divide into thirty pills: of these, 1 or 2 may be taken for a dose.

The foregoing remarks apply only to chronic or continued cough; of course the treatment of the affection as it arises in connection with other disease, either acute, such as inflammation of the lungs; or chronic, falls under the general management of these disorders. When feverish symptoms occur along with cough, all stimulation, either in diet, or by stimulant expectorants, is to be avoided; indeed, as a general rule, when cough exists, the diet should be as little stimulating as circumstances will permit, and the usual allowance of animal food curtailed; but in old people, and those who have lived freely, the lowering system must not be carried too far; it may be requisite even, at times, to stimulate, and to support strength by strong meat soups.

Again it is repeated, a cough ought not to be allowed to continue; if not relieved by some of the simple remedies mentioned above, medical advice should be sought, *particularly in the case of the aged*, and if there is much secretion of phlegm or mucus, the least continued impediment to the expectoration of which, in an old person, may rapidly induce dangerous or fatal embarrassment of the lungs, often most unexpectedly.

The possibility of a relaxed or elongated uvula being the cause of cough must not be forgotten; an examination of the throat will detect it, and the state may be relieved by the use of some astringent gargle, by a small fragment of catechu allowed to dissolve in the mouth, or by

touching the uvula once or twice a day with a camel's hair brush dipped in tincture of iron.

COUGH MIXTURES.

1. Take of Syrup of ipecacuanha.....One ounce.
Syrup of squill.....One ounce.
Syrup of toluOne ounce.
Tincture of blood-root.....One ounce.
Camphorated tincture of opium...One ounce.—*Mix.*

Give from $\frac{1}{2}$ to 1 teaspoonful whenever the cough is severe.

2. Take of Oil of anise.....One ounce.
Oil of sweet almonds.....One ounce.
Tincture of tolu.....One ounce.
Canada balsamOne ounce.
Madeira wine.....One ounce.—*Mix.*

Give from 10 to 20 drops in a little slippery elm or flax-seed infusion.

3. Take of Syrup of senega.....Five drams.
Syrup of ipecac.....Two and a half drams.
Syrup of rhubarb.....Five drams.
Muriate of morphia.....Fifteen grains.
Simple syrup.....Nineteen ounces.
Oil of sassafras.....Half a dram.—*Mix.*

Give 1 or 2 teaspoonfuls three or four times a day.

4. Take of Syrup of squills.....Two ounces.
Peppermint water.....Two ounces.
Ammoniated tincture of opium....Half an ounce.
Compound spirit of lavender.....Half an ounce.
Simple syrup.....One ounce.—*Mix.*

Give 1 teaspoonful three or four times a day.

5. Take of Syrup of wild cherry barkOne ounce.
Syrup of tolu.....One ounce.
Syrup of blood-root.....One ounce.
Fluid extract of stillingiaOne ounce.—*Mix.*

Give 1 teaspoonful every three or four hours.

6. Take of Syrup of squills.....Half an ounce.
Wine of ipecac.....Half an ounce.
Tincture of hyoscyamusHalf an ounce.
Simple syrup.....Two and a half ounces.—*Mix.*

Give 1 dessertspoonful every four hours.

(See ASTHMA; BRONCHITIS, ACUTE; BRONCHITIS, CHRONIC; CATARRH OR COMMON COLD; CATARRH, CHRONIC; CONSUMPTION, CROUP, INFLUENZA, LARYNGITIS, PNEUMONIA, PLEURISY, WHOOPING-COUGH, COLD, COUNTER-IRRITATION, BALSAM, MUSTARD, BLISTERS, EXPECTORANTS, LUNGS, ETC.)

COURTENANCE, *koun'-te-nānse* [Lat. *continentia*, a holding in]. The expression and aspect of the human face is much and peculiarly affected by the various diseases which affect the body, and the first view

of a countenance often conveys to a physician who has studied the subject, immediate, valuable, and certain prescience as to the nature of the disease for which his patient is about to ask advice. The indications are partly due to the changes of complexion which are associated with different forms of disease; but expression is equally significant. The physiognomical evidences have been classed by a writer, Mr. Corfe, who, enjoying abundant scope in such observations, has made them an object of special attention. The following is a summary of Mr. Corfe's arrangement:

Countenance in—

A.—BRAIN AFFECTIONS.—1. Lethargic, in disease causing insensibility. *Example*: Apoplexy. 2. Livid, in disease causing deficient change in the blood. *Example*: Suffocation and coma. 3. Distressed, in disease causing mental disturbance. *Example*: Paralysis and fever.

B.—CHEST AFFECTIONS.—1. Dusky, in disease interfering with blood changes. *Example*: Bronchitis. 2. Anxious, in disease impeding respiration. *Example*: Croup.

C.—ABDOMINAL AFFECTIONS.—1. Pinched, in painful seizures. *Example*: Colic and cholera.

D.—NUTRITION AFFECTED.—EMACIATION GENERAL.—1. Wan, in diseases of debility. *Example*: Consumption and cancer. 2. Hue peculiar, in diseases affecting the blood. *Example*: Heart disease and jaundice.

E.—ENLARGEMENT OF ORGANS, GLANDS, ETC.—1. Disturbed, in diseases causing continued uneasiness. *Example*: Sore throat, rheumatism, etc.

F.—VASCULAR DISTURBANCE.—1. Flushed, in febrile disease. *Example*: Inflammatory fever. 2. Pale and languid. *Example*: Hemorrhage, etc. (See COMPLEXION.)

COUNTER-IRRITATION, *koun'-ter-ir-re-ta'-shun*, [Lat. *contra*, against], is irritation or excited action in one portion of the body, which counteracts or withdraws analogous action going on in another portion. It may be naturally or artificially established, and it may be called into action within the body, as well as without; but the term is now generally applied solely to counter-irritant action artificially excited upon the skin. There are many various modes of exciting counter-irritation: some may be, and are used, popularly, with perfect safety, others are only admissible in medical hands.

Counter-irritants may simply produce reddening of the skin, or they may blister, or they may cause discharge of purulent matter, or even mortification of the surface. Heat, according to the temperature at which it is used, may give rise to any or all of these effects: mustard will redden smartly, and may blister; ammonia will do the same.

according to strength; camphor in solution, either in spirit or oil, will redden. Of the blistering counter-irritants the Spanish fly is the best, and almost universally employed. Boiling water, or its steam, or metal heated in boiling water, have all been used for the purpose, and might be, on emergency. Counter-irritation by tartar emetic, or tartarized antimony, takes the form of pustules or pimples. The salt is applied either in the form of ointment, or as a saturated solution, used as hot as can be borne, and rubbed upon the skin by means of a piece of flannel. The pustules formed by the latter mode are said to heal speedily, and to leave no scar, which sometimes happens after the ointment. When a common blister is irritated, "kept open," secretion of purulent matter takes place; but the system is a bad one, and is productive of much unnecessary pain and irritation.

Issues and setons cause discharge of matter. Counter-irritation, by means of galvanic agency, has recently attracted notice.

Iron heated to a red or white heat, moxas, and other applications which destroy the texture to which they are applied, fall under the head of cauterants, and can never be used as domestic remedies. There is, however, one application of the hot iron, introduced by Dr. Corrigan, of Dublin, which might safely be used by the non-professional, and as the instrument can be made by any blacksmith, might prove a valuable resource in remote districts, for the relief of nervous and rheumatic pains, such as lumbago, sciatica, etc., in which it is often of essential service.

The instrument consists of an iron portion about four inches and a half long, which ends in a disk half an inch in diameter, end quarter of an inch thick, and a wooden handle. The disk is to be introduced into the flame of a spirit-lamp, or of a piece of burning paper, and held till the metal becomes uncomfortably hot; the handle is then to be grasped, and the disk applied lightly, and momentarily, and at short intervals, to the skin over the affected part. Each touch of the disk produces a shining mark on the skin, and very shortly the whole surface becomes reddened and slightly inflamed.

As regards the use of counter-irritants generally, it is often serviceable to excite the skin by friction, or heat, before using them. When fever is present and inflammation going on, non-professional persons will do quite as much, if not more good, and be much less likely to do harm, by using the mild counter-irritation of moist heat, than by applying blisters, mustards, etc., particularly close upon the seat of the disease. If a blister is put on in these cases, it should be a large one. For further information respecting the counter-irritants individually, the reader is referred to the various articles.

An excellent counter-irritant liniment is made by mixing 1 dram of

croton-oil with 7 drams of soap liniment. A teaspoonful rubbed on the skin quickly brings out a crop of eruption. The person who rubs it on should wash the hands at once. (See MUSTARD, CROTON, ETC.)

COUNTRY AIR. (See AIR.)

COUP DE SOLEIL, OR SUNSTROKE. (See SUNSTROKES.)

COURSES. (See MENSTRUATION.)

COWHAGE. (See MUCUNA.)

COW-POX. (See VACCINATION.)

CRACKED WHEAT, *krakt hweet*. A very wholesome, nutritious, laxative diet. (See FOOD.)

CRADLE, *krad'-dl* [Ang.-Sax. *cradel*, *cradl*]. The old form of child's bed, is now nearly superseded by the more convenient bassinet. Either, if well arranged, should have a tolerably firm mattress, a firm pillow, a piece of protective waterproof cloth over the mattress, and soft blankets, but no curtains, which are incompatible with the health of the child. Rockers beneath, if they allow only very gentle motion, are admissible, but not otherwise. (See CHILD, CHILDREN.)

CRAMP, *kramp* [Ang.-Sax. *hramma*, Du. *kramp*], is a spasmodic, involuntary, and painful contraction of the muscular fibres. The term is generally applied to the affection of the voluntary muscles, in contradistinction to spasm, applied to that of the involuntary. Any muscles may become affected with cramp, but those of the legs and arms, of the former especially, are most liable to be so, doubtless from the greater liability of the nerves supplying the lower extremities, to irritation and pressure, two great exciting causes of the disorder. The cramp may be confined to one or two muscles, such as those of the calves of the legs, or may be more general, as happens in cholera. The affected fibres are drawn in hard knotty contractions, and maintain this condition for a longer or shorter time. The most frequent causes of cramp, are the presence of indigestible food in the stomach, or of acid in the bowels, or the pressure exerted on the nerves by overloaded bowels. A similar acting cause in pregnancy and labor, the weight and pressure of the child, also occasions painful and troublesome cramp. The disorder is often associated with the presence of worms. When cramp affects the arms and fingers, it may be connected with disease of the heart and great blood-vessels of the chest. The power of the application of sudden and prolonged cold in producing cramp, is often sadly exemplified in the case of bathers.

The best immediate remedy for cramp is friction with the hand, or better still, with the soap and opium liniment. When the legs are affected, it is always expedient to take medicine, rhubarb and magnesia, with 1 teaspoonful of sal-volatile, or 15 grains of carbonate of soda,

with sal-volatile, or a little ginger; and afterwards to clear out the bowels with some active aperient, such as castor-oil, especially if there is any existing constipation, or a possibility of their being loaded. Any other disorder of the digestive organs ought of course to be attended to. Some persons find relief to the immediate attack of cramp, by tying a band of some kind tightly round the limb, between the affected part and the body, whilst others are in the habit of standing upon some cold substance. The first process is perfectly safe, and may be tried; the second certainly is often effectual, but it is not devoid of danger. Active friction is quite the best temporary remedy. Cramp affecting the arms is always to be regarded with suspicion, if it recurs, a medical opinion should be taken. (See CONVULSIONS, SPASM, ETC.)

CRAMP-BARK. (See VIBURNUM OPULUS.)

CRANBERRY, *kran'-ber-re*, a very wholesome red berry, of acid taste, much used as a sauce. The species most commonly found in the United States, is the *Oxycoccus macrocarpus*.

CRANESBILL. (See GERANIUM MACULATUM.)

CRANIOTOMY, *kra-ne-ot'-o-me*, a desperate resource of the accoucheur in those cases where, from deformity of the pelvis, the head cannot pass through it, even with the assistance of forceps, and where, the child being dead, the Cæsarian section cannot be employed. It is done with a perforator, cautiously introduced during an interval from pain. The point of the instrument is directed so as to enter a fontanelle or suture, and, being introduced, the handles are opened, and the instrument rotated so as to break up the brain.

CRANIUM, *kra'-ne-um*, the skull containing the brain. (See SKULL, ANATOMY, BRAIN.)

CREAM, *kreme* [Lat. *cremor*], is that bland oily portion of the milk which separates and floats on the top; its composition is very nearly that of fat. It is a constituent of the milk of all animals. As the amount of cream, contained in cows' milk especially, varies considerably, the proportion may be ascertained by allowing the milk to repose in tall cylindrical glasses. Zinc pans have been recommended for use in dairies, as exerting some chemical action upon the milk, and causing the more abundant separation of cream. If there is chemical action, there must be danger of impregnation from the metal, and though it may be slight, it is better avoided. Cream is nourishing, but not suited for weak stomachs, except in small quantity, mixed with other articles of diet, such as arrowroot mucilage, when it may sometimes be advantageously substituted for a larger proportion of milk. (See MILK.)

CREAM OF TARTAR, in Chemistry, bitartrate of potash. (See POTASH.)

CREASOTE, *kre'-a-sote* [Gr. *kreas*, flesh; *sozo*, I preserve], a fluid containing oxygen, hydrogen, and carbon, first found by Reichenbach, in the heavy oil obtained by the distillation of wood-tar. When pure, it is a colorless oily liquid, of high refractive power, boiling at 398°. It has a burning taste, and its odor is peculiar. It is sparingly soluble in water, to which it gives its odor and taste, is freely soluble in acetic acid, alcohol, ether, benzole, and tersulphide of carbon. It coagulates albumen immediately, and is one of the most powerful antiseptics known. Meat that has been plunged into a solution containing only one per cent. of this substance becomes dry and hard on exposure to the air, and does not become putrid. Creasote given internally acts as a sedative, and is very useful in certain disorders of the stomach, especially in allaying severe vomiting. Dose, 1 to 3 drops. Applied externally, it serves to allay rheumatic and neuralgic pains, and will frequently remove toothache. It is also useful in inducing a healthy action in indolent sores. Creasote ointment consists of 1 fluid dram of creasote, and 1 ounce of simple ointment thoroughly mixed. Creasote mixture consists of 16 drops each of creasote and glacial acetic acid, $\frac{1}{2}$ teaspoonful of spirit of juniper, 1 fluid ounce of syrup, and 15 fluid ounces of distilled water. Dose, 1 to 2 fluid ounces. Creasote is also sometimes inhaled by mixing 12 drops with 8 fluid ounces of boiling water, in an apparatus so constructed that air may pass through the solution and be afterwards inhaled.

CREATINE, *kre'-a-tin*, is a crystallizable substance, existing in the flesh of animals.

CREPITATION, *krep-e-ta'-shun* [from *crepito*, to make a crashing or crackling noise]. 1. The peculiar sound or sensation occasioned by pressure between the fingers, in cellular tissue filled with air: as the lungs in their natural state, or a part affected with emphysema or gangrene. 2. The grating of the ends of broken bones.

CRESESSES, *kres'-ez*, in the various forms of land and water-cresses, are wholesome salads, but like other vegetables which are eaten uncooked, are not likely to agree with those of weak digestion. Water-cresses, so famed popularly, for their effect in purifying the blood, probably owe their beneficial influence to the presence of a small portion of iodine.

CRETA, *kre'-ta*. Lat. for chalk. (See CHALK.)

CRISIS, *kri'-sis* [Gr. *krino*, I decide], in Medicine, denotes the decisive period or event of a disease—a sudden and considerable change of any kind, occurring in the course of its progress, and producing an influence upon its character. Among ancient physicians, it was applied to that tendency which fevers were supposed to possess, of undergoing

a sudden change at particular periods of their progress. Hence there were what were called critical days—certain days in the progress of an acute disease on which a sudden change, either favorable or unfavorable, would take place, the seventh, fourteenth, and twentieth or twenty-first days, were regarded as eminently critical. In the course of acute diseases, and particularly of fevers, there usually occurs, after a certain time, some abundant excretory discharge, perspiration, diuresis, or purging, attended by a sudden fall in the temperature of the body. The term crisis is applied to this period of the disease, and the particular day on which it happens, counting from the day of seizure, is called the critical day, from which dates the period of convalescence, the patient having then got what, in common language, is called the “turn.”

CROCUS SATIVUS, *kro'-kus sa-ti'-vus*, saffron. A perennial plant belonging to the Nat. order *Iridaceæ*. It is a native of Greece and Asia Minor, and is much cultivated in many parts of Europe. The stigmas of the flowers are the parts used in Medicine. The dried stigmas, with the top of the style constitute hay-saffron, or when pressed together cake-saffron. Saffron is emmenagogue and diaphoretic, and has been used with benefit in chlorosis, hysteria, and suppression of the menstrual discharge. It is a well-known domestic remedy in the jaundice of newborn infants, and in promoting the eruption in scarlet fever and measles. Dose: of the infusion, 2 to 4 ounces; fluid extract, 20 to 60 drops; tincture, $\frac{1}{2}$ to 2 teaspoonfuls, to be taken three or four times a day. (See INFUSION.)

CROTON, *kro'-tun* [Gr. *kroton*, the dog-tick, in reference to the resemblance of the seeds to that vermin], a genus of plants belonging to the Nat. order *Euphorbiaceæ*. The seeds of the species *C. Tiglium*, and probably also those of *C. Pavana*, constitute the croton, or tiglium seeds, of the materia medica. They yield, by expression, an oil called croton-oil, of a brownish-yellow color, slightly viscid, of an acrid taste, and with a faintly nauseous odor. In doses of 1 to 3 drops, it is a powerful drastic cathartic, and, when applied externally, acts as a rubefacient and counter-irritant. The croton-oil liniment of the Pharmacopœia is composed of 1 fluid ounce of croton-oil, and $3\frac{1}{2}$ fluid ounces each of oil of cajeput and rectified spirit, and is very useful as a counter-irritant in subacute inflammation of the chest, bringing out an eruption of pustules in a few hours. The seeds are used without preparation, in India, as purgative pills. *C. Eleuteria* and *Cascarilla*, natives of the Bahama Islands and Jamaica, yield the aromatic tonic bark commonly known as *cascarilla* or *eleutheria* bark. It is warm and bitter to the taste, and emits a fragrant odor when burned. It is aromatic and tonic, and is employed when a pleasant and gently stimulant tonic is desirable;

as in dyspepsia, chronic diarrhoea and dysentery, flatulent colic, and other cases of debility of the stomach and bowels. It is sometimes advantageously combined with the more powerful bitters. Cascarella counteracts the tendency of cinchona to produce nausea. The infusion, 1 ounce of the powdered bark to 10 fluid ounces of boiling water, is given in doses of 1 to 2 fluid ounces; the tincture, 2½ ounces of bark, bruised, to 1 pint of proof spirit, in doses of ½ to 2 teaspoonfuls; the fluid extract is given in doses of 20 to 60 drops.

CROTON-OIL. (See CROTON.)

CROUP, *kroop* [Ang.-Sax. *hreopan*]. Croup consists of inflammation of the mucous membrane of the windpipe, which is a continuation downwards of the larynx. It occurs most frequently in male children, and the second year is the usual period for its attack. It is essentially a disease of infants; as inflammation of the larynx is peculiar to adults. Why inflammation should be generally found in the one case in the larynx and in the other in the windpipe it is difficult to say; for, although croup may affect the larynx in some cases, still it has its origin in the windpipe. Croup is peculiar, too, in another respect, viz.: that, contrary to the usual process of inflammation affecting mucous tissues, there are false membranes formed resembling those produced by the serous membranes under the action of inflammation, but differing from them in being more albuminous, more brittle, and less fibrous, and in not becoming organized and developed into permanent structures of the organism.

Causes.—The causes of croup are almost invariably connected with cold and moisture, particularly during east winds; but it may also be occasioned by the removal of wrappings from the throat, and exposure to a cool air, when a child is heated. Children liable to croup are still more so after attacks of acute or debilitating disease.

There are certain families the members of which are more subject to croup than others. Dr. Wood of Philadelphia speaks of the disease as running in families. All the children of certain parents suffer from it, while those of others escape. Haase mentions the death of four children, the offspring of one mother, within six weeks, from this disease; and there are probably few persons who, within the circle of their own acquaintance, have not heard of a similar though not so harrowing a domestic calamity.

The occurrence of croup is, to a very considerable extent, influenced by climate and locality. Certain climates and localities there are which, to all appearance, favor its origination. It is more common in northern than in southern countries. Dr. Alison considers croup to be generally produced by a combination of cold with moisture; hence it is

observed to be remarkably more frequent in low moist situations than in higher grounds, and in wet weather than in cold.

Symptoms.—Croup comes on with the ordinary symptoms of catarrh: the child is said to have a “cold,” he begins to sneeze and cough, the eyes and nose pour out abundant secretions, and the voice becomes gruff and hoarse, and this is a symptom which should always arouse suspicion on the part of the anxious mother; the little patient is feverish, his tongue is white and furred, the pulse becomes frequent and hard, and the breathing more and more difficult, and attended with a “crowing” inspiration; the face is flushed, and the skin hot and dry. The cough is of a ringing, brassy, metallic character, adding to the distress caused by the above-detailed symptoms. As the disease makes progress—as it rapidly will do unless cut short by active antiphlogistic treatment—the child’s powers begin to fail, his skin becomes cold and blue, his face livid and expressive of great anxiety and distress; the cough loses its metallic character and becomes much less noisy, and the voice ceases to be audible. As it is drawing to its close, the little patient thrusts his head back, the eyes become prominent and staring, and the pupils dilated, the nostrils are widely opened, drowsiness supervenes, and the child struggles for his breath, and gradually sinks, being exhausted by this slow progress of strangulation, and narcotized by the circulation of non-aerated blood.

This affection usually comes on in the middle of the night: the child is put to bed apparently in good health, but wakes towards morning with the characteristic inspiration. It resembles inflammation of the larynx in running a very rapid course, being sometimes fatal within the twenty-four hours.

Treatment.—Every case of this disease requires treatment the most active, efficient, and energetic. In cases where an attack is merely apprehended, in which such symptoms as feverishness, a dry, with perhaps slightly ringing cough exist, care should be taken that the child so affected is watched night and day. For the relief of such symptoms, the warm bath should be resorted to, or what will in the author’s opinion answer equally well, large poultices of hot moist bran should be placed over the upper part of the chest and fore-part of the throat, whilst the child is kept in a sufficiently warm situation. In the habitations of the poor, especially, the latter mode of treatment is certainly preferable to the bath, which cannot always be procured without delay, nor managed without danger of after chill. Confinement to bed, at all events to one room, and spare diet, should be ordered. In such circumstances the employment of an emetic, the wine of ipecacuanha, or antimony (for a very young child, the former), often brings relief. Ten or 15 drops of

the wine or syrup of ipecac, may be given with a little warm water every ten minutes till vomiting occurs; this effect being produced, it may be well, by smaller and less frequently repeated doses, to keep up for a short time the nauseating action of the ipecacuanha or antimony; while a little saline medicine ($\frac{1}{2}$ to 1 teaspoonful of sulphate of magnesia) is given to act upon the bowels. It is very necessary to attend to the regulation of the temperature of the room occupied by the child; it should be both warm and moist—not lower than 65° Fahr. To convey some moisture into the air of the apartment, the steam from a boiler or kettle on the fire may be directed through a simple roll of paper. Care must also be taken that there is no draught of cold or cool air. By attention to these simple instructions attacks of croup may be warded off; and their application is specially important in the case of children who have either previously suffered from the disease or belong to a family the members of which are subject to it.

There are a few other points to which it is of great consequence to attend in the treatment of croup, as well as of threatened croup: 1. See that, for the purpose of enabling the breathing to be as free as possible, the little patient is placed with the head a little higher than the body. 2. Let there be no external circumstances tending to obstruct the breathing, no pressure of the bed-clothes on the chest or neck. 3. Let the child drink freely of bland fluids (water, milk, toast and water, barley-water); this for two reasons—to prevent the throat getting dry, and to supply the fluids of the system which are deficient.

If the disease sets in violently, more energetic remedies must be used, and that promptly. *Vomiting must be excited as soon as possible, and a state of nausea kept up.* This may be accomplished by the administration of 20 to 30 drops of wine or syrup of ipecac, given every ten or fifteen minutes until vomiting ensues, and then every hour or two until recovery takes place. One-sixth or one-eighth of a grain of tartar emetic dissolved in hot water and given every few minutes, will sometimes answer better than the ipecac. If these remedies are not at hand, 1 teaspoonful of powdered alum, in some thin syrup, will very promptly produce vomiting. The child affected with violent croup should be placed for several minutes in the hot bath; and, after removal from it, a sponge dipped in hot water should be closely applied to the neck, the application being renewed from time to time as the sponge cools. The late Dr. Graves, a distinguished Dublin physician, bore a high testimony to the value of the *hot sponge*. If the disease has advanced to a further stage, and there exists prostration to any extent, then such remedies as those now mentioned, which are depressing, must be considered as inadmissible; and while it is, in such circumstances, still desirable to produce

vomiting, that must be accomplished, not by the exhibition of antimony or ipecacuanha, but by sulphate of copper, of which $\frac{1}{4}$ to $\frac{1}{2}$ grain may be given in water every ten minutes till vomiting occurs.

When an appearance of sinking is visible, stimulants, wine, and strong beef-tea, must be administered; and while all such cases must be regarded as fraught with danger, there is yet often room for hope; for even in circumstances apparently the most desperate, and when medical appliances have been abandoned, a sudden improvement has taken place, a portion of the false membrane obstructing the air-passages expectorated, and ultimate recovery occurred.

Tracheotomy, or making an artificial opening into the windpipe, is not so successful in this disease as in laryngeal inflammation, for false membranes are formed the whole way down the windpipe; but in a few cases it has been successful, when there were either no adventitious membranes produced, or where they were limited to the upper part of the windpipe and larynx.

Prevention.—The prevention of croup is, of course, of the highest importance, and, therefore, the causes of it enumerated in the first part of this article must be avoided in every way; slight colds should never be neglected in children of families predisposed, but should be treated by confinement to the house, or to bed if requisite, by milk diet, diluent drinks, and by the tolu cough mixtures with the addition of ipecacuanha wine (see cough mixtures in article COUGH); paregoric should also be given to allay troublesome cough, and, in fact, those measures recommended in the subjects CATARRH OR COMMON COLD, and SNUFFLES, carried out. The susceptibility may also be lessened, by not clothing the throat too warmly, and by the regular practice of bathing the throat and chest well with cold water every morning, rubbing afterwards with a rough towel till thorough reaction ensues. This practice is, of course, better commenced in warm weather, and not too soon after an attack of the disease. Flannel should always be worn next the skin, and care taken particularly, that bed-chambers, and rooms children habitually live in, are not too warm, and never occupied whilst the floors are wet after washing. A residence at a distance from water is to be preferred. (See CROUP, FALSE; ANTIMONY, IPECACUANHA, BATHS AND BATHING, COUGH, CHILD, LARYNX, TRACHEA, CLIMATE, COLD, COLD FEET, DAMP, HOUSES, WALLS AND WALL PAPERS, FLANNEL, CLOTHING, BARLEY-WATER, BEEF-TEA, ATOMIZER, INHALATION, CATARRH OR COMMON COLD, SNUFFLES, ETC.)

CROUP, FALSE; SPASMODIC CROUP, OR CHILD-CROWING.

Causes.—The occurrence of this disease is, to a considerable extent, under the influence of climate and season. In dry and warm climates

it is little known, hence it is not familiar to many German and French writers. Damp situations and seasons predispose to, as well as act directly in exciting the disease; it is also aggravated by the changes of temperature. Let it be borne in mind, that indiscretions in the matter of diet very clearly predispose to it. Children of the scrofulous constitution (for description of what is thus meant, see SCROFULA), and especially such as suffer from enlargement of the cervical glands, are subject to this disease. The great majority of patients affected with this disease are very young children. Among those causes which seem to act most powerfully in directly exciting the affection, are the irritation in the gums during teething, the presence of worms in the bowels, or of indigestible articles of food in the stomach, and also eruptions on the scalp, and exposure to cold and damp. Paroxysms of the disease are apt to be excited by violent muscular movements, by crying, cough, sudden awakening from sleep, or sudden application of cold.

Symptoms.—This is a disease of a nervous character, closely resembling in its symptoms and mode of attack the true form of croup (see CROUP.) It occurs quite suddenly during the night, the child wakes up and is unable to inspire, it struggles for breath, and at last the act of inspiration is performed with a whistling or crowing sound. It has been variously named by different writers: some call it spasmodic croup, others child-crowing, and still others false, or bastard croup, and Dr. Mason Good gave it the pedantic title of *laryngismus stridulus*. This affection is due to the spasmodic contraction of the small muscles guarding the entrance of the larynx and windpipe, and unless this spasm be in due time overcome, the little patient falls lifeless upon its nurse's lap, but more commonly the spasm, after lasting for a few seconds, relaxes, and the child is released from its sufferings and danger. This spurious affection may be distinguished from true croup by the absence of all inflammatory and feverish symptoms.

Treatment.—What is the proper treatment to be pursued in this affection? First, what is the plan to adopt when the child is suddenly seized? Let him be placed as quickly as possible in a warm bath (see BATHS AND BATHING.) While this is being prepared, let a sponge, previously dipped in hot water, be applied over the throat; and as the sponge cools, let the reapplication be continued. A sudden clap on the back, or the dashing of a little cold water over the face and body, may suffice to undo the spasm, and these simple means should not be neglected. Under all circumstances let an emetic be immediately administered; this can be done while the patient remains in the bath. For this purpose, the safest and best remedy is the wine or syrup of ipecac, in doses of 15 drops to $\frac{1}{2}$ a teaspoonful, every ten or fifteen

minutes, until vomiting ensues. A bottle of either the wine or syrup should always be at hand in every house where there is a sufferer from false croup. In cases where the ipecac is not at hand, a teaspoonful of mustard, stirred up in water, will meet the emergency. If these means are insufficient to reduce the spasm, there are still others in the hands of the physician, but he must be present to execute them.

Preventive treatment.—But something more is required than attention to the paroxysm itself. The tendency to it may continue. It then becomes a matter of importance to determine whether any cause, distant it may be (that is, in a remote part of the body), exists; if dentition is painful and difficult, the gums must be lanced; if worms are present, some suitable vermifuge remedy must be administered, say 2 grains of santonine in thin syrup, at intervals of six hours, until three doses have been taken, followed by a dose of castor-oil or infusion of senna; and if there be an irritating scalp eruption, those appliances must be used which tend to soothe or entirely remove it. If the child suffer from enlargement of the cervical glands, or present other manifestations of the scrofulous constitution, the general health must, if possible, be improved, by such means as a nourishing diet, taking care that the child's supper is plain and light, and remedies such as cod-liver oil, or phosphate of lime, in doses of 5 to 10 grains, administered in chalk mixture thrice daily, as suggested by Dr. William Budd; the syrup of the iodide of iron in 5 drop doses, three times a day, etc. Lastly, and very important in the treatment of this disease, change of air, specially from an impure or damp to fresh and more bracing air, is oftentimes a potent remedy; it may always be regarded as a powerful adjuvant in every tedious case. Nor need the removal be to a great distance. (See CROUP, SPASM, SCROFULA, DENTITION, WORMS, IPECACUANHA, SANTONINE, FLANNEL, CLOTHING, CLIMATE, BATHS AND BATHING, HOUSES, DAMP, COLD, COLD FEET, CHILD.)

CROW CORN. (See ALETRIS.)

CRY OF CHILDREN, *kri tshil'-dren* [Goth. *greitan*, Ang.-Sax. *grætan*]. The principal distinctive difference in the cry of children is, whether it be that of expiration from, or inspiration into, the lungs. The cry of a strong child, suffering pain, is more of the expiratory; that of a weak, exhausted child of the inspiratory, or sobbing character. (See CHILDREN.)

CRYSTALLINE LENS, *kris'-tal-line* [Lat. *crystallus*, a crystal; *lens*], is the lens of the eye, a lentiform pellucid substance, enclosed in a membranous capsule, and situated in a depression in the anterior part of the vitreous humor. Opacity of this substance is the disease known as cataract. (See EYE, COUCHING.)

CRYSTALLIZATION, *kris-tal-le-za'-shun*, may be defined as the spontaneous assumption of well-defined geometrical forms by bodies in passing from the fluid or aeriform state to the solid condition. Bodies not capable of assuming the crystalline form are termed amorphous, or colloid; those which form crystals, crystalloid. When a substance crystallizes in two distinct forms, which cannot be derived from the same original, it is said to be dimorphous. Sulphur, for instance, will crystallize in octahedra, or prismatic crystals. Some substances are even trimorphous. Sulphate of nickel crystallizes in light rhombic prisms, square-based octahedra, and oblique rhombic prisms, according to the temperature at the time of evaporation. Bodies crystallizing in similar forms are called isomorphic. Crystallization may be effected in several ways—by evaporation, by sublimation, by fusion, or by slow electrical action.

CUBEBA, *ku-be'-ba* [Arab. *cubabah*], a genus of plants belonging to the Nat. order *Piperaceæ*. The species *C. officinalis*, or *Piper cubeba*, a native of Java and Prince of Wales' Island, yields the berries called cubebs, which are extensively employed in medicine for their peculiar power of arresting excessive discharges from the urethra. Cubebs resemble black pepper, but may be distinguished by the network of raised veins on their surface, also by the short stalks which they possess. Cubebs is a well tried remedy in the treatment of gonorrhœa. It is aromatic, pungent, stimulant, and purgative, and acts as a specific in arresting gonorrhœal discharges. It has also been given in the whites, abscess of the prostate gland, piles, chronic bronchial inflammation, and incontinence of urine. The use of cubebs is contraindicated during a high inflammatory condition, and is advised to be used in gonorrhœa only when the inflammation is confined to the mucous membrane of the urethra. Dose of powder, 30 to 120 grains, three times a day. The oil of cubebs is obtained by distillation, and is given in doses of 5 to 20 drops. The tincture, 2½ ounces in powder to 1 pint of rectified spirit, is prescribed in doses of ½ to 2 teaspoonfuls. Dose of fluid extract of cubebs, ½ to 1½ teaspoonfuls. To be taken three or four times a day. (See GONORRHŒA.)

CUBEBS. (See CUBEBA.)

CUCKOO-PINT. (See ARUM.)

CUCUMBER, *ku'-kum-bur* [Lat. *cucumis*], a pleasant article of diet for the strong, but a very unwholesome one for invalids.

CULVER'S ROOT, OR CULVER'S PHYSIC. (See LEPTANDRA VIRGINICA.)

CUPPING, *kup'-ping* [from the cup-like form of the glasses employed], is a process of blood-letting, by which blood is drawn from

wounds made for the purpose, by the agency of suction, exerted by a cup or other vessel exhausted of air, or nearly so. It is a very old surgical expedient, and in former times it was, and, indeed, among uncivilized nations at the present time, it is still effected by the primitive agency of a sharp flint or knife, and a cow's horn with the tip removed, suction being made by the mouth of the operator. In modern surgery, cupping, when well performed, is at once one of the most elegant and most useful of our methods of treatment. For the purpose of wounding the skin, a metallic box, containing a set of lancets, varying in number, is provided; in this box, which is called the scarificator, the lancets are so fixed as to be discharged, when set or cocked, by a trigger and spring, which cause them to pass rapidly through the skin in a semicircular sweep, so rapidly indeed, that the usual sensation of cutting is not felt. The most convenient number of lancets is twelve, and the depth of the wound made by them can be increased or diminished by turning the screw; this must be done while they are fixed at half-cock, and protruding from the instrument. The only other essentials for cupping are, a vessel from which the air can be exhausted, and kept so when it is applied to the skin, and a flame of some kind, or some other means, for exhausting the air. There are, however, sundry other little requisites convenient for the operation, to be mentioned hereafter.

Cupping is applicable in most instances where local abstraction of blood is called for, and may often be substituted for leeches, and even for general bleeding; it is a safe operation when used in proper situations, and one may be taught its performance by a few practical lessons; it is, moreover, a most useful accomplishment for persons who are far removed from medical assistance. It is hoped that the following details may be sufficiently clear, to enable even those who have never seen cupping performed to effect it in case of need; but by all means, let every one who contemplates the possibility of such a requirement get practical instruction, which there can be no difficulty in doing.

Cupping glasses of various kinds are, and have been used, but the most general is the bell-shaped form of various sizes; some of these are made with brass fittings at the top for the attachment of an exhausting syringe; but the most useful form of all, and that most easily applicable by an unpracticed or an unprofessional hand, is the leech cupping-glass. When this is used, the lamp or torch is not required as it is for the application of the bell-shaped glass; the torch is simply a lamp made for burning spirits of wine, by means of a wick which will afford a large flame.

Cupping may be performed in most situations on which it is possible to fix a glass, by a proficient, but the range of the unprofessional operator

must be much more limited, partly on the score of safety, but also for the reason, that in some situations they are not likely to draw blood sufficient to effect any good object. As a general definition, an unprofessional person may cup anywhere upon the back of the trunk of the body, from and including the nape of the neck, to the bottom of the spine, and also on the forepart of the chest. In selecting a place within the above limit, it should always be ascertained that there is room for the rim of the glass to be in contact with the skin throughout its entire circle. It being pre-supposed that the abstraction of blood is called for, and it being also pre-supposed that the intending operator is provided with the necessary instruments, he should also have some warm water, a good-sized piece of sponge, or, in lieu of it, a piece of flannel, a light, and some plaster.

The person to be operated upon being conveniently placed, and the skin bared, it should be moistened with warm water, or the circulation of the part excited by means of hot water fomentation applied for some time; an exhausted glass is then to be applied for a few minutes, removed, the scarificator placed upon the portion of skin which had been drawn up by the glass, and the lancets, which have been put on full cock, discharged. The scarificator being removed, the exhausted glass is again to be applied over the wounds made by the lancets; the blood ought immediately to commence flowing. If the bell-shaped glass is used, when applied, one edge should be made to rest upon the skin, the flame of the spirit-torch passed rapidly under it, and withdrawn, and the glass at the same instant pressed entirely down upon the skin. This is the point of the operation most difficult to perform well and efficiently by the unpractised; for if the exhaustion is incomplete, suction, and consequently the abstraction of blood, are so likewise; and in endeavoring to make the movements quickly, there is a liability of burning the skin. Fortunately, an individual can practice the manœuvre upon the skin of his own thigh at any time. Much of this is avoided by the use of the leech cupping-glass, from which the air is exhausted by simply putting into it a small fragment of paper, half an inch square, dipped in spirits of wine, or spirit of some sort. A short piece of wire, with a small portion of tow tied to the end of it, and dipped in the spirit, is used to ignite the paper in the glass, the latter being applied to the skin the moment this is done, and the wire withdrawn; the confined air extinguishes the lighted paper in the cupping-glass at once.

In addition to simplicity in application, the leech-glass has also the advantage of taking at once a considerably larger quantity of blood than the other form, and thus of requiring to be less frequently re-applied; moreover, the blood, as it flows, gravitates to the bottom of the glass,

and does not clot over the wounds, as it does with the bell-shaped instrument. These remarks do not refer to the quick, elegant, and efficient manipulation of a proëssed cupper, but as the operation must be in the hands of the unskilled. When an applied cupping-glass is to be removed, it must be done by pressing down a portion of the skin at its edge with the point of the finger, so as to admit the air, which enters with a hiss. If, after a cupping-glass has been on some time, the blood does not flow freely, but clots upon the wounds, and if it is desirable that more blood be drawn, the glass should be taken off, and—when the wounds have been cleansed with warm water—re-applied. When the operation is concluded, it is only necessary to cleanse the wounds, which will not continue to bleed in the situations indicated for cupping in this article, and to put a little adhesive plaster upon them.

Such is the operation, under the pre-supposition that the operator is provided with the requisite instruments, but in the absence of these, *very good substitutes may often be made*. To make the incisions, which should be about the eighth of an inch in depth, any sharp instrument will suffice; for the cup, a tumbler or any similar vessel with a *uniform rim* will do; and to exhaust the air, whatever will blaze freely. In cases of poisoned wounds, the application of a cupping-glass, where it can be done, either with or without enlargement of the original wound, is a good precaution, and will retard the absorption of the poison, during the interval of procuring medical assistance.

Dry cupping is a most useful remedy, perhaps too little used; it is the application of the cupping-glass for from ten to twenty minutes, without any previous scarification. The blood is thus withdrawn from parts in the vicinity of that operated on; and relief afforded, without weakening by actual abstraction of blood. In local congestions of blood, in local pain, etc., it is often of much service. The principle of dry cupping has been brought forward as a remedial measure on a large scale by M. Junot, who, by means of vessels capable of being exhausted after the manner of a cupping-glass, and which are made sufficiently large to include a whole limb, thus draws temporarily a great mass of blood—from three to four pounds—out of the current of the general circulation, and produces the effect of a large bleeding, without its weakening results. The method is said to be successful, but it has not been much employed in this country.

Cupping is certainly a most useful accomplishment for the emigrant. It is a safe method, and when once practised, an easy one, of blood-letting; but, by all means, let it be practically learned if possible, and then the above, though meant for all, will be more certainly useful in bringing back to the memory the minutiae which so aptly escape it. The

chief inconveniences of the leech cupping-glass are its greater bulk and liability to fracture than the bell-shaped form. (See LEECH BLEEDING, SCARIFICATOR, ETC.)

CURARI, *ku-ra'-ri*, a violent poison used by the South American Indians to poison weapons. It is supposed to be obtained from a strychnos, and contains an alkaloid (*curarine*) of a yellowish amorphous form, which is very active.

CURCUMA, *kur-ku'-ma* [Arab. *curkum*], a genus of plants belonging to the Nat. order *Zingiberaceæ*. The rhizomes of *C. angustifolia*, contain much starch, which, when extracted, forms East Indian arrow-root, or curcuma starch. The dried tubers or rhizomes of *C. longa* constitute the *turmeric* of the shops. It is extensively cultivated in almost every part of India, being employed as a condiment by the natives. It forms the principal ingredients of curry-powder, giving to that compound its peculiar odor and bright yellow color. As a medicinal agent, turmeric is a stimulant aromatic tonic, and is used especially in jaundice and the itch; also employed in debilitated states of the stomach, intermittent fever, and dropsy. Dose: of the fluid extract, 2 to 3 teaspoonfuls; infusion, 2 to 4 ounces. (See INFUSION.)

CURD. (See CHEESE.)

CURE BY NATURAL MEANS. The natural or hygienic means of cure are fully treated under various headings in this work. (See DIGESTION, DIET, FOOD, BREAKFAST, LUNCHEON, DINNER, SUPPER, MEALS, DRINKS; STIMULANTS, ALCOHOLIC; EXERCISE, AIR, VENTILATION, HOUSES, DRAINAGE, SANITARY SCIENCE, CLIMATE, HEALTH RESORTS, MINERAL WATERS, ABLUTION, BATHS AND BATHING, COLD, DAMP, COLD FEET, HEAT, LIGHT, CLOTHING, SLEEP, DISEASE, LIFE, POVERTY, RICHES, MARRIAGE, REGIMEN, OCCUPATION; RULE, LIVING BY; HEALTH, LONGEVITY, ELECTRICITY, MOVEMENT CURE, ETC.)

CURRANTS, *kur'-ranz* [from Corinth, where they were originally grown], the well-known fruit, either black, red, or white, are extremely wholesome, disagree with few, and are particularly well adapted, either fresh or cooked, to form part of the cooling diet requisite for health in very hot weather. Moreover, the mechanical action of their seeds has a most beneficial effect in exciting the bowels. Some bilious persons say they find benefit from eating a few ripe red currants a short time before breakfast, and that the practice tends to keep off the increased liability to bilious attacks during the hot weather, when currants are in season. The black currant possesses more astringency than the other varieties, and when preserved, is much domestically used in sore throats, etc.; it also acts upon the bowels. Boiling water poured upon a portion of currant preserve, and the infusion allowed to cool, forms one of the

pleasantest and most useful of our fever beverages. Black currant leaves are used in infusion, as a domestic diuretic. What usually goes by the name of the dried black currant, is no currant at all, but a species of small grape. It is brought almost solely from the islands of the Levant. It is a favorite domestic aperient—particularly in the lying-in chamber—mixed with gruel. It probably acts mechanically.

CURRY, *kur'-re*, is food of any kind prepared with the well-known condiment, curry-powder, which is composed of turmeric, cayenne and black peppers, mustard, ginger, and other spices. The preparation is not adapted for invalids, and should only be used sparingly by those in health, especially if they have any tendency to irritation of the stomach and bowels, or to head affections. It is probably better adapted, as regards wholesomeness, to give requisite stimulating power to the rice and other foods of hot climates, than as an addition to an animal diet.

CURVATURE OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

CUSPARIA BARK. (See ANGUSTURA BARK.)

CUSSO, OR KOUSSO. (See KOUSSO, BRAYERA.)

CUTANEOUS DISEASES. (See SKIN, DISEASES OF THE, ETC.)

CUTICLE. (See SKIN.)

CUTS. (See WOUNDS, COLLODION.)

CUT-THROAT, *kut-throte'*. In this horrible casualty two dangers chiefly threaten life immediately: the one, death from immediate bleeding, if any of the large vessels have been divided, or if this has not been the case, death from blood finding its way into the windpipe. In the first, few unprofessional persons could possess on the instant either sufficient knowledge or presence of mind to render much efficient assistance—certainly not in the case of the large arteries; but bleeding from a small branch might be arrested by the means suggested in article ARTERY. Should a superficial vein be wounded, and pouring out dark blood, gentle pressure in its course, between the wound and the head, might be of service. To prevent the danger of suffocation, when the windpipe is opened, and when the bleeding does not immediately threaten life, the position of the person is the principal thing to be attended to; this should be either on the side, or on the face, in whichever situation fluids may most easily run off without entering the tube. This being done, and some light gauze material thrown loosely over the wound, nothing more should be attempted before the arrival of that medical assistance which must as speedily as possible be procured. Above all things, no attempt should be made to close the wound. (See WOUNDS, ACCIDENTS.)

CYANOSIS, OR BLUE DISEASE, *si-a-no'-sis* [Gr. *kuanos*, blue],

is a diseased condition of the system arising from a malformation of the heart, which allows the intermixing of the venous with the arterial blood; in consequence of which the former is not properly oxygenized, and a blueness is imparted to the skin, whence the disease takes its name. It usually manifests itself soon after birth; and those affected by it generally die at a very early age, but occasionally they reach mature life. Little can be done in the treatment of this disease beyond the adoption of palliative measures. The avoidance of fatigue or mental excitement, nourishing diet, warm clothing, and a pure mild air, include probably all that can be done for the patient.

CYNANCHE, *si-nang'-ke* [Gr. *kuon*, a dog, and *agcho*, I strangle, from dogs being said to be subject to it], is used in Medicine to denote sore throat. (See QUINSY, LARYNGITIS, CROUP, DIPHTHERIA.)

CYPRIPEDIUM PUBESCENS, *sip-re-pe'-de-um pu-bes'-senz*, ladies' slipper. A perennial plant belonging to the Nat. order *Orchidaceæ*. It grows in most parts of the United States and Canada, and is known in different localities as nerve root, moccasin root, Indian shoe, bleeding heart, and American valerian. The roots are the parts used in medicine, and they contain a principle called *Cypripedin*. The root is tonic, nerveine, and antispasmodic. It is employed in nervous headache, nervous excitability, hysteria, neuralgia, and other morbid conditions of the nervous system. Dose: fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 1 to 4 ounces (see INFUSION); solid extract, 5 to 15 grains; cypripedin, 2 to 4 grains; syrup, made by adding 4 ounces of the fluid extract to 12 ounces of syrup, 2 to 4 teaspoonfuls.

CYST, *sist* [Gr. *kustis*, a bladder], in Anatomy, is applied to the urinary bladder, gall bladder, and similar vessels in the human body; but it is also applied to morbid growths within the body, having the form of a bag or bladder, and enclosing morbid matter.

CYSTITIS. (See BLADDER, DISEASES OF THE.)

CYTISUS SCOPARIUS, *sit'-e-sus sko-pa'-re-us*, common broom. A tree belonging to the Nat. order *Leguminosæ*, common to Europe, and cultivated in the United States. It flowers in May and June. The tops, with the buds, are the officinal parts. In large doses, emetic and cathartic; in small ones, diuretic; used in dropsy; also to increase the flow of urine; and is said to be especially beneficial in dropsy of the chest, combined with diseased lungs. Dose: fluid extract, 20 to 30 drops; infusion, 1 ounce; decoction, 1 ounce; to be taken three or four times a day. (See INFUSION, DECOCTION.)

D.

DAMIANA, *da-me-an'-a* [*Turnera Aphrodisiaca*.] Fluid extract of the plant. A Mexican drug, with strong aphrodisiac powers, for which is claimed great efficacy in sexual debility, or lethargy of the sexual organs, whether the result of abuse, or senility. Many cases of total or partial impotence have been cured by the use of this drug, where the usual remedies have given no relief. Used in the form of fluid extract. Dose; from $\frac{1}{2}$ to 1 teaspoonful three or four times a day.

DAMP, *damp*. Moisture is one of the most prolific and most generally acknowledged sources of disease; in whatever way applied to the body, whether in atmosphere, or clothing, or bed, it is alike apt to be productive of bad consequences, often of the most serious character. When combined with decaying vegetable matter, and more especially when favored by heat, fever and ague are the results of undue moisture; when cold and damp unite their depressing influences, colds of every kind, inflammatory attacks, scrofula and consumption, rheumatism and neuralgia ensue.

Dampness, or injurious excess of moisture, may depend upon the natural formation of the country, or character of the soil, or upon a superabundant growth of timber, which obstructs the drying effect of the sun's rays, and of a free circulation of air. The effects of these conditions are evinced by the agues of the marsh districts, the cretinism, of the low, dark, damp valleys of the Alps, the fevers of the tropical forests and African rivers, or in a lesser degree by the relaxing effect of a damp and somewhat mild climate. The advance of the improvements of civilization does much, if it cannot do all, to rectify these sources of disease; the cutting of water courses, the clearing of timber, are for the most part attended with increased salubrity of the district. The latter, of course, requires circumspection; for much harm may be and has been done by the injudicious removal of protecting belts of trees; neither must it be forgot, as mentioned in article AGUE, that the intervention of a wood may prevent the extension of the malaria of a marsh. But the shelter of trees is a different thing from closely encircling a house with them; they will retain moisture around, more or less according to the nature of the soil and the denseness of their growth, and in a way which is not compatible with health,

Dampness and moisture in excess, cannot of course be prevented,

when owing to the vicinity of large bodies of water, but in such a case the chief evils to be dreaded are the cold winds which "come off the water" laden with vapor, and which, as happens in many situations, are liable to produce croup in children, and catarrhal affections in the predisposed. If these influences cannot be guarded against, of course removal is the only remedy.

Damp houses must be unwholesome; if occupied too soon after building, disease, especially of a rheumatic character, is the frequent consequence. Most generally, insufficient drainage, particularly in the country, is the cause of dampness, and it is moreover, after a house has been built, one difficult to rectify, but it should be done as far as possible; even houses, which apparently stand high, are damp from this cause, especially if the ground slopes to, as well as from them. If no other remedy is available, nothing is so effectual as covering the damp floor with sheet lead, which effectually excludes the moisture, if it does not do away with the cause.

If all houses were built as they should be, with hollow walls, and the walls lathed before being plastered, there would be few or no complaints of damp walls, which are so conducive to rheumatism and other diseases.

Damp clothes and beds are so generally recognized as causes of disease, that the fact scarcely requires to be insisted on, or indeed the additional one, that when the former are unavoidable, the danger is much if not wholly done away with by continued active motion, which keeps up the animal temperature, and it is probable that this preventive, not being available in the case of the latter, renders a damp bed almost synonymous with disease and death.

Damp, in most instances, acts, undoubtedly, by abstracting, either by evaporation or otherwise, the natural temperature of the body; but as dry cold does this likewise without producing the same certain injurious consequences, it is probable that moisture also calls into action changes connected with the electrical conditions of the body, of the precise nature of which we are not at present cognizant. One thing is certain, that moisture is always more apt to act injuriously upon the system when the nervous power is either depressed, or not in its full state of activity, as it is during sleep, or for the first hour or more in the morning, after rising, and before food of some kind has been taken; hence it is always found that fogs and moisture are much more likely to injure during the first morning period, and that the best protection is some warm food or drink, which may support or gently stimulate the system. (See AGUE, NEURALGIA, RHEUMATISM, CATARRH, CONSUMPTION, ETC.)

DAMP AIR. (See AIR, DAMP.)

DAMP BEDS. (See DAMP.)

DAMP CLOTHES. (See DAMP.)

DAMP HOUSES AND WALLS. (See HOUSES, WALLS, DAMP.)

DANCING. (See EXERCISE.)

DANCING MANIA, *dan'-sing ma'-ne-a*, an epidemic disorder among susceptible subjects, in which imitation is brought about under high excitement. It is closely allied to hysteria, and principally occurs among persons who are desirous of notoriety or sympathy. During the Middle Ages, epidemics of this class were common in Germany; and in Italy they were ascribed to the bite of the tarantula spider. Towards the close of the fourteenth century, a number of men and women appeared at Aix-la-Chapelle, on the festival of St. John, dancing and screaming in a frantic manner in the streets. Many foamed at the mouth, and danced till they fell down insensible; others dashed their brains out against the walls. While dancing they were unsusceptible of outward impressions, but were haunted by visions. The epidemic spread over the Low Countries, and bands of wretched, ignorant people traversed the country, and, excited by wild music, danced themselves into convulsions, singing all the time in derision of the priests. At the beginning of the seventeenth century, St. Vitus's dance, as it was then called, was on the decline, and is now only heard of in isolated cases. (See SAINT VITUS'S DANCE.)

DANDELION. (See TARAXACUM DENS LEONIS.)

DANDRIF, DANDRUFF, OR SCURF, *dan'-drif, dan'-druf*, are white scales or flakes which occur on the head, sometimes in great numbers. It is a natural discharge of the skin, and only troublesome when excessive, but not in any way dangerous. Frequent washing of the head with soap and water, and the application of an alkaline or spirituous lotion, as 2 ounces of solution of caustic potash to 1 pint of water, or rum and water will generally serve to remove it.

DATE, *date*. The fruit of the date palm constitutes a considerable portion of the food of the people of Egypt and Northern Africa, Arabia, and Persia. The nutritive material is chiefly sugar. As imported into this country, dates are not a digestible article of diet.

DATURA STRAMONIUM, *da-tu'-ra stra-mo'-ne-um*, a perennial plant belonging to the Nat. order *Solanaceæ*. It is commonly called thorn-apple and Jamestown or jimson-weed, and is found growing in various parts of both Europe and America. The dried leaves and the ripe seeds are the parts used in medicine, and they owe their activity to the presence of an alkaloid called *datura* or *daturina*. Stramonium possesses powerful narcotic properties, and is used by physicians as an

anodyne and antispasmodic. In large or long-continued doses it produces dilatation of the pupil, disturbance of the functions of the brain, coma, delirium, and death. The leaves are often smoked in a pipe, and the fumes inhaled—10 to 30 grains are sufficient for this purpose—but if dizziness, dryness of the throat, and dilatation of the pupil are produced, its use must be immediately discontinued. It sometimes acts as an anodyne when opium and belladonna fail. It is employed in spasmodic asthma, lockjaw, various forms of mania, epilepsy, chorea, neuralgia, rheumatism, and in acute uterine diseases. It is also used with success as a local application in piles. It must always be used with extreme caution. Dose: of the fluid extract, 2 to 10 drops; tincture, 10 to 30 drops; wine, 16 to 60 drops; solid extract, $\frac{1}{4}$ to 1 grain; powdered leaves, 1 to 3 grains.

DAUCUS, *daw'-kus*, a genus of plants belonging to the Nat. order *Umbelliferæ*. *D. Carota*, variety *sativa*, is the cultivated or garden carrot, so much esteemed for its esculent roots. Those roots are occasionally used in medicine as a poultice, for their moderately stimulant properties. The carrot is nourishing, and contains a considerable proportion of saccharine matter, but it is not easily digested by weak stomachs, and requires thorough boiling to make it wholesome for any. In the experiments of Dr. Beaumont, carrot was found to take three hours and fifteen minutes of the healthy digestive process, for its solution.

DAY BLINDNESS. (See BLINDNESS.)

DEAD, DISPOSAL OF. (See DEATH.)

DEADLY NIGHTSHADE. (See ATROPA BELLADONNA.)

DEAFNESS, *def'-nes*, or deficiency in the sense of hearing, may be either partial or complete, and it may be accompanied with dumbness.

Causes.—The causes of deafness may be temporary or permanent, and the affection may be due to disorder in the brain and nervous system, to disease and disorganization of the essential portions of the organ of hearing itself, or to causes which interfere with the transmission of sound.

The temporary causes of deafness may be such as have their origin in temporary disorder of the brain, resulting from external violence, or from disorder either local or general—more particularly some forms of fever, of which deafness is a frequent concomitant. Some drugs, quinine particularly, given in too large doses, also give rise to the affection.

Temporary deafness is frequently occasioned by common cold, which seems to cause tumefaction of the membranes lining the passage of the external ear, or when the throat is affected, obstruction of the eustachian

tube—which extends between the internal ear and the throat—either by swelling, or accumulated mucus. These causes often continue in action, and keep up the deafness, long after the cold has disappeared.

Permanent deafness may result from disease of the brain, such as paralysis, or from violence, such as severe blows or falls upon the head. Disease of the ear itself, or its effects, can scarcely fail to cause deafness. The internal portions of the ear are liable to a variety of disorders or diseases. Many of these take their origin during attacks of acute disease—particularly measles or scarlet fever—in scrofulous individuals. Discharges occur from the ears, and the minute bones contained in the cavity are sometimes discharged. To allow of this, of course, the membrane of the tympanum, or drum of the ear, must be wholly or partially destroyed. This important membrane of the ear being diseased, is often the occasion of deafness. As mentioned above, the obstructions, either in the outer ear-passage, or in the eustachian tube, first arising from common cold, *may* become permanent; in the case of the latter, when the swelling subsides, thick mucus may block it up; in that of the former, hardened wax, or cerumen. This last-mentioned cause of deafness is very frequent, is easily discoverable, and no less easily removed, affording most striking relief to an almost total defect of hearing. It is perhaps the only affection of the organ causing deafness, which is likely to be well or safely treated domestically. (See article CERUMEN.)

The subject of deafness and of diseases of the ear generally, was formerly greatly neglected by medical men, and consequently fell into the hands of quack aurists. Of late years, however, it has been taken up by many medical men—among whom may be found quite a number of distinguished members of the profession—and promises fair to take the place its importance demands.

Treatment.—A person affected with temporary deafness, if it is traceable to an assignable cause, such as cold, should wait the effect of time for its alleviation. A blister applied behind the affected ear, or, better still, an eruption brought out just below the ear, by tartar emetic or croton-oil, may probably give some relief. If wax be suspected or ascertained to have accumulated, it should be removed, as directed under article CERUMEN, but never by ear-picks or such-like dangerous weapons. When no assignable cause for the deafness, whether permanent or temporary, can be discovered, a medical man should be consulted, who, if he cannot give relief, will always refer his patient to a medical man who has given special attention to aural surgery; but unqualified quacks with nostrums and never-failing cures must be shunned, especially the traveling impostors who style themselves aurists. No one, surely, can be so credu-

lous as to believe that any application, or variety of applications, put into the outer ear—and strong stimulants are often used in this way, can be remedial for a symptom owing to causes so varied. Some varieties of deafness are alleviated by appliances to the external ear-passage, and some remarkable cases have been published of great improvement in hearing resulting from small pellets of cotton wool, or other substances, moistened and introduced so far into the ear, as to be in contact with the tympanum membrane, which had been perforated by disease. For moistening these, and indeed for moistening the passage of the external ear, when too dry—an occasional cause of deafness—or for moistening hardened wax previous to syringing, glycerine is better adapted than the oil generally in use. For information concerning the use of the ear syringe, the reader is referred to the article, EAR SYRINGE.

Various modes of treating deafness, with reference to its various causes, have been and are employed. Its dependence upon destruction of the eustachian tubes, has originated the practice of passing an instrument, or eustachian catheter, up these passages for the purpose of clearing them. The operation is one which requires both practice and tact for its safe and efficient performance.

When deafness is confirmed, and cure cannot be obtained, relief must be sought in the various artificial methods—ear cornets, and the like—for collecting and conveying to the ear as large a body of sound as possible. The remarkable power of gutta-percha in the conveyance of sound, has afforded many facilities for adding comfort to the deaf, and improving their means of hearing, and many instruments for the purpose are now manufactured.

With respect to the deaf and dumb, or “deaf-mutes,” as they are now called, whatever the cause, whether congenital deficiency, or complete deafness brought on by disease or accident before the power of speech had been thoroughly acquired, the education should be conducted in an establishment for the purpose. It cannot be done at home, but much may be done by the philanthropic and earnest endeavors which have devised, and are now daily devising new methods for imparting to these unfortunate individuals the blessings of knowledge. It has probably been an error in the education of the deaf-mutes hitherto, that they have been brought up in establishments by themselves, a plan it would seem less likely to fit them for mingling usefully with the world in general in after-life, than commingling them with children who have the power of speech.

Dumbness is known usually to proceed from deafness, either existing from birth, or arising early in life. The exceptions to this are very rare,

and occur only from defective formation of the organs of voice and speech, or from disease of the brain. In the case of dumbness arising from total congenital deafness, sounds can never be associated with ideas, and consequently feelings, emotions, actions, and the names of objects or description of their qualities and states, must find a language in natural gesture, or in conventional written and manual signs. In the second case, that, viz., of total deafness coming on later in life, even if speech shall already have been acquired, it may be gradually lost, in consequence of the want of habit to associate sounds with speech. This occurs, however, only in early life, when the habit of speech has not been fully impressed on the memory. It rarely happens that dumbness is entailed by deafness so late as the tenth or eleventh year, and the extent to which this may occur will depend very much on the circumstances in which the individual is placed. In those who become only partially deaf, but to such an extent as to incur the risk of becoming also mutes, it seems probable that much of the power of retaining voice and speech, or of regaining it, may depend on a very small difference in the amount of hearing. (See EAR; EAR, DISEASES OF THE; CERUMEN, DUMBNESS, ETC.)

DEATH, *deth* [Ang.-Sax.], in common language, is opposed to life, and is considered as the cessation of it. It supervenes as the necessary termination of all that long succession of phenomena of which life consists. Death may result either from the general failure of the vital powers, as in old age, or from some disease or injury in some of the vital organs, which extends itself to the organism in general.

The signs of approaching death are necessarily various, and depend, in a great measure, upon the nature of the disease. In some cases there is a dullness of the senses, inactivity of the muscles, vacancy of the intellect, and extinction of the sentiments, as in death resulting from old age. There is, also, frequently some degree of delirium, which is often of a most interesting and pleasing character, resembling dreaming more than any other form of derangement; sometimes, again, the dying fancies of the individual are of the most dreadfully distressing character; but it is presumptuous, as many do, to hazard much upon the various modes of terminating the career of life. In the delirium the reproduction of visual sensations often bears a considerable part; and frequently the victim of typhus is seen catching at something in the air, or picking at it on the bedclothes. The sense of hearing is frequently also affected, and imaginary voices, and sounds of tolling bells, etc., are heard. *Dementia*, or mental debility, sometimes comes on shortly before death, and for the most part manifests itself in an incapacity of concentrating the ideas upon one object, or by an all but total failure of the memory;

this mental weakness often painfully manifests itself in the apparent pleasure which the sufferer takes in some of the most childish amusements. The voice generally becomes low and weak as death approaches; but sometimes it has a shriller pitch than natural; sometimes it is husky and thick; and not unfrequently it dwindles to a mere whisper. The muscular system generally becomes feeble and relaxed; the pulsations of the heart gradually feebler, but more frequent; the respiration sometimes hurried and panting, sometimes ceasing gradually; and sometimes slow, laborious, and stertorous. There is frequently, also, an accumulation of fluids—mucous, serous, or purulent, in the bronchial tubes. What is known as the “death-rattle” is produced by the passage of the air from the lungs through the fluid collected in the trachea and upper respiratory passages. The dying are often impatient of any kind of clothing, throwing off the bedclothes, and lying with chest bare, and arms extended and the neck as much exposed as possible. The nose and lips are very characteristic in the dying; the lips become pale, the nostrils dilated and dark-looking, and the hairs about the lips seem more than usually apparent; the teeth look like pieces of ordinary bone, and the eyes seem to shadow through the eyelids, or are partially turned under the lids; the nails look dark, and the end of the fingers sodden. Finally, convulsive twitchings often show themselves in the face, with singular elevations of the eyebrows, and staring of the eyes. A gaping attempt to breathe terminates the struggle. When coma is present a mucous rattle is of fatal import; on the contrary, when the lungs are affected, the supervention of coma is equally to be dreaded.

When fluids taken by the patient flow back from his mouth, or fall heavily down his throat, as if poured into an ordinary tube, death is soon to be expected.

In young children a curious playing with the bedclothes often attends fatal affections of the brain. I remember a little child, who had her handkerchief in her hand, which she spread out repeatedly with apparent care and in a fantastic manner that would have been amusing, but for its fatal import. The picking of bedclothes, and catching of the hands as if at imaginary objects, are well known as terrible indications.

Among the other signs of approaching dissolution are the sunken eye, the hollow temple, the sharpened nose, the forehead dry, tense, and harsh, the complexion shallow, livid, or black, the lips cold, flaccid, and pale, or of a leaden hue. We believe that the opinion that generally prevails of the great amount of suffering that immediately precedes death, and which is expressed by such words as the death struggle or agony of death, is very erroneous. There is every reason to believe that as death approaches, the sensibilities are gradually deadened, and

that in most cases consciousness has ceased before the struggle commences. Those who have made the nearest approaches to actual death, as in drowning, have described their feelings as being of an extremely pleasurable kind.

The possibility or the probability of illness having a fatal termination, devolves a great responsibility, and much anxiety upon the mind of a medical man, as regards the patient more particularly. There is the preparation of the mind for the great change to be considered; the settlement of worldly affairs on which may depend the future welfare of others to be thought of; but there is also the effect of the announcement, nay, of the slightest hint of danger upon some individuals, to be duly pondered, lest the mental shock may put the finishing stroke to what disease has begun, and extinguish the last faint chance of recovery.

It may be requisite on the first symptoms of danger occurring in some diseases, particularly in those likely to affect the powers of the mind, to make the announcement early, in others it may be delayed for some time after the physician has decided in his own mind that the case can have none but a fatal issue, till, indeed, the idea, without being actually imparted, has gradually dawned upon, or been gently awakened in the mind of the patient, and has by degrees ripened into conviction.

Too frequently it happens, that whilst a medical man is examining the patient, or still within hearing, questions relative to that patient's state are put, whether "there is any danger?" whether the person will "get better?" and other interrogatories, which he can scarcely either answer or refuse to reply to, without conveying to the patient information he may not wish to communicate. Every medical man must have felt himself at times, thus unfairly embarrassed.

The influence of season in causing death is well marked. According to Quetelet's tables of mortality in Belgium, the greatest number of deaths among individuals above twenty-five takes place in February, and the smallest number in July. Other researches as regards Berlin, show that the greatest number of children die in summer and the fewest in winter, whilst with adults the case is exactly reversed. It has also been observed that more deaths on the average occur between six A.M. and noon, than at any corresponding period during the twenty-four hours. (See CLIMACTERIC DISEASE.)

One word as to the treatment of the dying; let quiet, attention to every sign, the moistening of the lips, the gently shifted position, be the attentions; but who can tell how painful the disturbance of the forced stimulant or medicine, the noisy lamentation, or the pulling about or pulling away of pillows which nurses are apt to practice, may be to the last moments.

In persons found dead, or apparently so, the first thing is, of course, to ascertain the real state of the case. If death is doubtful, the first object must be to ascertain, if possible, the cause of the condition which so nearly approaches to it; this must be the first step, but it must be taken with all possible speed, in order that proper measures for resuscitation may be adopted. The causes may either be natural or violent; of the former, apoplexy, sudden fainting, or suffocation from internal affections, may be in operation; of the latter, suffocation from unnatural causes, poison, wounds, burns, cold, starvation, lightning, include the most probable influences. Some of these, such as burns, wounds, the action of lightning, cold, and many of the usual modes of suffocation, such as hanging, drowning, etc., are too evident, either in themselves or from concomitant circumstances, to be overlooked; but others, particularly those cases of apparent death resulting from natural causes, from some forms of suffocation, and from poisons, are almost beyond the power of the unprofessional to investigate. For the mode of distinguishing, and for the subsequent treatment, the reader is referred to the articles devoted to these subjects. It is repeated, when a person is found apparently dead, do not let the fact be assumed without investigation; the spark of life may yet linger in its earthly tenement, may yet be not past recall, beyond which, the loss of even a short time, or the total abandonment of care may quickly place it. If there is the faintest hope that life is not quite gone, whilst the causes of the mishap are investigated, means, such as are recommended under the peculiar circumstances, should be at once adopted, and vigorously—no half-measures will turn the scale between life and death. These things are peculiarly important, for often it can only be a fortunate chance that places a medical man on the spot where cases such as the above have occurred. Of course, where it is possible, medical assistance ought to be as quickly procured as may be, but time may or must necessarily elapse, and while it slips by, life slips away, which might be preserved by the knowledge possessed by some intelligent bystander, which might lead him to think that there was still hope—often too readily given up by the crowd—and lead him to direct the adoption of rational and really efficient measures, instead of the useless, or worse than useless, treatment followed, where there is no information to guide, or head to direct.

When persons are found who are undoubtedly dead, there yet remains something to be done, for the cause may be natural, or unnatural, and in the latter case the ends of justice may either be forwarded or retarded by those who first discover the body. The exact position should be noted. The stiffening or not of the limbs. The presence or absence of warmth about the chest or abdomen particularly. The state of the

clothes. Whether there are signs of vomited or other matters discharged from the body. Wounds noticed, and the state of the blood upon them, whether fresh, coagulated but yet soft, or hardened. And, indeed, whatever the circumstances connected with the finding of the body can suggest to the intelligent mind, should be written down. On the arrival of the judicial and medical authorities, there are other matters of course to be investigated, which only they can undertake, but as most of those above-mentioned are evanescent, the persons first on the spot can best, or only, testify to them, and facts which may appear trivial to note at the moment, may, in criminal cases, be the turning-point on which conviction hinges.

As it is a well-known fact that all the usual signs of death occasionally fail, and, at long intervals we read the account of some one, supposed to be dead, having been interred alive, the question is often asked, “*Is there any positive sign of actual death?*” Of course decomposition is an unfailing sign, an absolute test of death. Science, however, says there are others just as certain. It is a well-known circumstance that the liquid preparations of the deadly nightshade or belladonna, when applied to the ball of the eye during life, produce an enlargement of the pupil, owing to the contraction of the muscular fibres of the iris. After death the muscle fails to respond to the application of the irritant. This is known as the eye-test. A red-hot iron applied to the skin during life, produces a blister; after death, the surface is charred, but no blister is formed. This is known as the blister-test. A third test is formed by plunging a polished needle into the body. If life still is there, the needle will be tarnished, but if life be extinct the needle will remain bright. It is known as the needle-test.

After death the body should be, as soon as compatible with decency, disposed of in the most suitable manner. One or two days in summer, and two or three days in winter, is as long a time as a body can with safety remain unburied. By the ice-box, or by the use of disinfectants, or by embalming when circumstances demand it, the body may be preserved for a much longer time. Wooden coffins are better than metallic ones, unless apertures are left in the latter for the escape of the gases, which result from decomposition. It is a fact that contagious diseases may be communicated by dead bodies, therefore, the practice of relatives and friends kissing the lips of the dead, should be deprecated; also the practice of carrying the corpse through our most crowded thoroughfares on its way to its last earthly resting-place—the cemetery—which should never be in the city or town, as is too often the case, but some distance in the country. (See APOPLEXY, ACCIDENTS, DISINFECTANTS, BROMO-CHLORALUM, ETC.)

Causes of unexpected death are treated of in various articles of this work.

DEBILITY, OR WEAKNESS, *de-bil'-ete* [From Lat. *debilis*, weak], is a falling off from the usual power of the individual to perform those exertions, whether of duty or pleasure, in which he has habitually engaged, and which, judging from the constitution, mode of life, etc., he might naturally be expected to perform.

Illness and debility may be said to be synonymous, for it is difficult to imagine the former unaccompanied or not followed by weakness, except in the few exceptional instances, in which apparent debility, caused by the presence of morbid matter in the blood, is relieved by the disorder which carries off the cause of the depression. Such is seen to be the case in mild attacks of bilious diarrhœa, which do not go far enough to affect the general strength, and which are immediately followed by relief to the feelings of languor and weakness which preceded them; indeed, unwonted discharges of any kind, whether in the urine, or from the skin, or even of blood in small quantity, if they do not go too far, are often followed by feelings of strength rather than of debility. In these cases, however, the debility was apparent, not real; that of oppression rather than of depression.

Causes.—To the foregoing and similar sources, then, may be referred all those causes of apparent debility, or in other words, of languor or torpor, which arise from impurity of the blood, consequent upon the retention of noxious matters in that fluid, which are from some cause unremoved as they ought to be, by the agency of either lungs, liver, kidneys, bowels, or skin, or which have been absorbed into the vital fluid from without.

As apparent debility is referred to impurity of blood, so the cause of real debility must be looked for, in many cases, in its deterioration or deficiency. The vital fluid, which is the medium for supporting our animal temperature, and for supplying plastic elements to the ever-wearing textures of the body, may be deficient in all or any of the elements required for these purposes, or it may itself have been drained away by hemorrhage. The first office of the blood, the maintenance of animal heat, is so essential, that it seems arranged by the Author and Supporter of our life; that to carry on this, the soft constituents of the body may be sacrificed almost to the extreme limit; but this very circumstance must be a cause of debility during illness, when to obtain fuel as it were, muscular substance is consumed away, whilst muscular motion is unexercised. Again, whatever plastic elements the blood may be deficient in, the organs to which those elements should be supplied become debilitated. This is most strikingly exemplified in the case of

the bones in childhood, where food is deficient, which become soft—rickety—for want of the due supply of earthy matter; still more generally is it exemplified, in those cases so often quoted, of animals fed, or rather starved, upon certain kinds of food, such as arrowroot, white sugar, bread made of fine flour, etc., which, however wholesome as articles of diet in themselves, do not contain plastic elements for the building up or sustaining the bodily tissues in strength and healthy active operation; to deficiency, therefore, of the blood, as regards those elements required in the unceasing operations of the living frame, must we look for the most generally operating and palpable cause of debility. But this cause is itself only an effect of other causes. If the blood is to nourish well, it must be nourished well itself; the supplies it is ever yielding to the system must be rendered to it from without; the food must not only be in quantity and quality sufficient to preserve the balance of nutrient materials in the blood, but it must be properly digested, properly fitted for its commixture with the vital fluid; if either food or digestion be deficient, debility, more or less, must be the result.

In the healthy constitution, and sufficient nutriment of the organic constitution of the body, and of the nervous system, lies the true element of strength, or the real seat of weakness. To use a simile, the machine must be strong in all its parts, and its moving power adequate to its requirements to constitute real well-balanced strength.

When the central organ of the nervous system, the brain itself, becomes debilitated, the condition may be manifested by affections of the body, partial or general, or by disorders of the mind. The brain may be debilitated or exhausted by the excessive stimulation of alcohol, opium, and other agents which act upon it peculiarly, also by sensual excesses, over-nursing and the like; but perhaps the most frequent source of weakened brain in this country, is undue exertion of it as the agent of the mind; it is tasked till it gives way, is used up. This is not a figurative expression, it is the actual truth, that the substance of the brain is actually consumed by the process of intense thought, the amount of consumption, probably, being in proportion to the exertion the mind is put to. In persons of irritable and nervous temperament it is not uncommon to find deposits of phosphatic salts in the urine after the mind has been strained, and we can only look to the nervous system and brain as the most probable source of the additional excretion of phosphorus. The subject is undoubtedly an obscure one at present, but it is deserving of notice, from bringing directly and sensibly to the mind, and in a physical point of view, the possible and probable manner in which this wonderful agent of man's intellect may be, and is, exhausted.

Having then seen, that debility may either be apparent or real, and that in the latter case it may depend upon deficient nutriment or deficient healthy supply of nervous power, it remains to consider the causes which most generally tend to bring about these conditions.

Debility has been divided into original and acquired. The former is witnessed in the children of parents whose constitutions have been weakened by any cause, such as dissipation, advanced life, etc., and also in the children of scrofulous families. The latter or acquired debility, may, of course, be caused by whatever lowers the standard of health. As already mentioned, insufficient nourishment is one great source of debility; likewise, the absence of the usual stimuli of solar heat and light, deficiency of fresh air and exercise, and of stimulation to the mind by a proper amount of healthy active exertion. Again, there is the debility produced by the direct action of injurious agents, a continued damp climate, either warm or cold, poisons gradually absorbed in necessary employment, or accidentally but continually taken into the system, and such like; and also by depressing passions of the mind, such as anxiety, fear, etc.

Lastly, there is debility, the result of direct abstracting and exhausting influences. Any habitual loss of blood, or draining discharge of any kind, over-nursing, or sexual excesses. One especial cause of debility requires notice, it is that occasioned in young children or people who sleep with the aged; for the fact is an undoubted one, that the practice has an extremely debilitating effect upon the former. It is one which should never be followed or permitted. The withdrawal of accustomed excitements often occasions debility of an alarming and even fatal character. The debilitated drunkard or the opium eater cannot without danger be deprived of his usual stimulant, and even the man who has lived in the most perfect moderation, cannot always, without danger of inducing great debility, leave off an accustomed stimulus. It is not said that in many instances this may not be done with impunity, or even benefit, but there are cases in which it is hazardous.

Treatment.—In the treatment of debility, whether simple or complicated with disease, it must be obvious to all that it must be adopted with due reference to the cause. This must, if in continuance, be removed or rectified as quickly as it may be; if the mischief, as occurs in original debility, or in that produced by causes which have ceased to operate, cannot be prevented, of course nothing remains but to build up or restore strength by nourishment, tonic medicines, change of air and scene, especially to the sea-side when that is practicable. In every case, however, of marked debility, the medical man should be consulted; he only is likely to detect with certainty the cause or causes, and to direct

the adoption of appropriate remedies. It is repeated, in the treatment of debility, whatever may be the cause, if still in operation, that must be rectified, but the weakness itself is only to be repaired by a sufficiently ample supply and circulation of healthy blood. The latter must be procured by every means which tend to enrich and purify the vital fluid; good food well digested, air, exercise, and the use of all accessories to health, and assisted when suitable by such regular and regulated exercise of the debilitated parts themselves, as will increase the circulation of blood through them, without exhausting either their constituent tissues or nervous power; but it is useless, and worse than useless, to load a stomach which cannot digest it, with food and drink, in the vain hope of giving strength, as people too often do, or wish to do, in cases of febrile or other disease. To use the simile of a steamer, although the seasoned wood-work within may be broken up to feed the engine, and to carry the vessel safely into port, it would be no slight hindrance, and no small aggravation of her danger, were she to be loaded with water-logged or green wood, which would not burn when it was wanted; so it is with the body in fever; the already prepared and digested components stored up in its tissues, though not perhaps accumulated for the special purpose, will yet answer well to keep its works in movement; but crude food is like the green wet wood, useless for good, and fitted only to overload and retard. When increase of nourishment is called for in cases of debility, care must always be taken to adapt it to the condition of the digestive organs; these are generally weakened, and while the food given contains much nutriment, it should be as easily soluble in the stomach as possible. For information on this head, however, the reader is referred to the articles on DIGESTION, FOOD, DIET, ETC. (See ANIMAL HEAT, BILIOUS CHOLERA, BLOOD, FEVER, NERVES, NERVOUS DISEASE, STARVATION, ETC.)

DECAY, *de-ka'*. After the sixtieth year in men, and somewhat earlier in women, as a general rule, the period of old age or of decay commences, the descent has begun, imperceptibly perhaps at first, but it is progressive. There may be no positive disease, but the circulatory powers fail, the arteries lose their elasticity and tone, and in this, perhaps, lies one great cause of the decay of the body generally, the deficient circulation of blood; the brain, the muscles, the whole body becomes smaller, shrinks, and if there is no disease, the powers of material life are gradually extinguished, a few degrees fall in the thermometer may be all that is required to put out the flickering flame. For the management of this stage of life the reader is referred to the article on AGE, OLD. (See also CLIMACTERIC DISEASE, DEBILITY.)

DECIDUOUS MEMBRANES, *de-sid'-u-us*, are those which line the uterus during pregnancy, and which are cast off shortly after the birth of the child.

DECLINE. (See CONSUMPTION.)

DECOCTION, *de-kok'-shun* [Lat. *decoquo*, I boil], in Chemistry, the extraction of the soluble portion of plants by boiling. It should be performed in a covered vessel. When the menstruum is valuable, as alcohol, a retort and a receiver, or the common still, may be used, to condense and preserve the vapors that would otherwise escape. It is more powerful than infusion by reason of the increased temperature; and is employed to extract the mucilaginous parts of plants, their bitterness, and other vegetable principles. It is not suitable, however, where the virtues of the plants depend wholly or in part on the essential oil or volatile principles which they contain. As a general rule, and unless stated differently, the decoctions mentioned in this work, contain 1 ounce of the drug to 1 pint of water. (See DRUG, INFUSION.)

DECOMPOSITION, *de-kom-po-zish'-un* [Fr. *decomposer*, to decompose, from Lat. *compono*, *compositus*], is the separation of the constituents of a body during putrefaction. In Chemistry it is applied to any process during which a compound substance undergoes the separation or re-arrangement of its elements. (See PUTREFACTION.)

DECREPITUDE, MEANS OF PREVENTION. (See LONGEVITY, HEALTH, ETC.)

DECUBITUS, *de-ku'-be-tus* [from *decumbo*, to lie down], the attitude or disposition of the body of a patient when in the horizontal posture. This forms an important feature in some diseases. (See POSITION.)

DEFORMITY, *de-form'-e-te* [Lat. *deformitas*, from *de*, and *forma*, a form], is the want of that regularity of form necessary to constitute the beauty or symmetry of an object. In the human subject deformities may be either congenital or acquired; *i.e.*, occurring before or after birth.

Causes.—Deformities are frequently produced by physical injuries suffered by the mother during pregnancy; and hence a strong mental impression may so affect the mother physically as to transmit its effects to the fœtus. Of the other class of deformities, or those which are acquired after birth, they may arise from various causes, from accident, from bad habits, or from debility (which see), and may occur in almost any part of the body. They commonly receive the name of distortions, and are frequently occasioned by affections of the muscles or nerves, as in various kinds of lameness, wry neck, squinting, etc. The most common cause of distortion, however, is disease of the bones. These are

sometimes deficient in the earthly matter which gives them hardness and rigidity, and thus are incapable of supporting the weight of the parts which they are designed to bear, or of sustaining the muscular action, without becoming bent and distorted. From this arises the disease known as rickets (which see). The distortion known as lateral curvature of the spine arises from weakness in the vertebral muscles, inducing a habit of resting the weight of the body more on one side than the other. Angular curvature of the spine differs entirely from the above, and is occasioned, for the most part, by the ulceration of the body of one or more of the vertebræ.

Treatment.—Perfect rest in the horizontal position, issues and setons in the neighborhood of the diseased bone, and attention to the general health, is the treatment to be adopted in the last mentioned case. Diseases of a similar kind frequently occur in the bones and joints of other parts of the body, and require similar treatment. Distortions may also arise from a variety of other causes; as rheumatism, gout, burns, and various chronic and local affections; but these come more properly for consideration under their own heads. Much can now be effected in the way of the cure of deformities, whether congenital or acquired; the means will necessarily differ according to the nature of the case. In general, nourishing diet, iron, cod-liver oil, phosphate of lime, cold bathing, sea air, and the like will be attended with marked benefit. In many cases properly directed muscular exercises or movements with a view to strengthen the relaxed muscles will effect a cure. A good account of various mechanical contrivances for the relief or removal of deformities will be found in a work on deformity by Dr. Sayre, of New York. (See CLUB FOOT.)

DEGLUTITION, *deg-lu-tish'-un*. [Lat. *deglutitio*, from *deglutio*, I swallow], is the act of swallowing, or the passing a substance, either solid, liquid, or gaseous, from the mouth to the stomach. It is divided into three stages. In the first, the food passes from the mouth to the pharynx; in the second, it passes the opening of the glottis, and of the nasal organs, and arrives at the œsophagus; and in the third it passes through this tube and enters the stomach. The first of these is purely voluntary; the second is an action of the reflex function; the third is altogether involuntary, being due to the irritability of the œsophagus, which, by a series of muscular contractions and expansions, forces the substance downwards.

DELIRIUM, *de-lir'-e-um* [Lat. from *deliro*, I rave or am furious], is a confusion of ideas, which occurs in the progress of certain diseases, from disturbed function of the brain. Sometimes the term is employed to include every form of mental alienation; but generally a distinction

is made between insanity and delirium, the latter occurring principally in fever and inflammatory diseases, while the former is unattended by these disorders. (See INSANITY.) The insane usually display all the external appearances of health, and have the digestive and nutritive functions in a sound state. In the delirious, on the other hand, all the cerebral functions are severely affected; there are no correct sensations, connected ideas, or passions; no regular voluntary motions; little or no intelligence or recollection. The patient is almost a stranger to everything that surrounds him, as well as to himself. Delirium may be either violent and frantic (*delirium ferox*), as in acute inflammation of the membranes of the brain, or low and muttering (*typhomania*), as in low fever. It supervenes on fever during any part of its course. It occurs in the hot state of some intermittents, but rarely makes its appearance in typhoid or continued fever until the disease has reached its height. It sometimes occurs suddenly, without any previous indication; but more frequently it is preceded by headache, throbbing of the temples, a flushed and oppressed countenance, etc. The patient is at first delirious during the short and imperfect periods of sleep, or immediately after he is roused, becoming, when fully awakened, more clear and comparatively collected. By degrees this lucid interval becomes less perceptible; the individual becomes more and more incapable of reflection and mental exertion, and gradually loses the power of recognizing the persons and objects which surround him. When delirium is about to terminate fatally, sensibility becomes more and more impaired, until all conscious feeling seems to be lost. Inarticulate moaning succeeds to delirious incoherence, the patient loses in a great measure sight and hearing; the mouth and tongue are dry, yet the patient no longer complains of thirst; the pupils become scarcely contractile; black spots, like flies, appear before the patient's eye, and the evacuations escape without consciousness. As delirium is rather a symptom of disease itself, its treatment necessarily forms part of that of the disease on which it supervenes and will therefore fall to be noticed under these heads. (See DELIRIUM TREMENS.)

DELIRIUM TREMENS, *de-lir'-eum tré-menz*, is a disease of the brain. It is usually caused by an abuse of spirituous liquors, but sometimes also by great mental anxiety and loss of sleep; or it may result from bodily injuries or accidents, loss of blood, etc. Delirium sometimes makes its appearance in consequence of a single debauch; but more frequently it is the result of protracted or long-continued intemperance. It usually supervenes on a fit of intoxication; but it not unfrequently occurs, also, when the habitual drunkard omits his accustomed draught.

Symptoms.—The approach of an attack is almost invariably preceded

by the patient being remarkably irritable, with a fretfulness of mind and mobility of body. He becomes very nervous and uneasy; is startled by any sudden noise, the opening of a door or the entrance of a visitor; is restless; the hands and tongue are tremulous; he complains of inability to sleep, and if he dozes for a moment, he is awakened by frightful dreams. Soon delirium manifests itself; if questioned, the patient often answers rightly enough; but if left to himself, he begins to talk or mutter; he is surrounded by frightful or loathsome animals; is pursued by some one who has a design upon his life; has terrible and ghastly visions. Though most commonly of a frightful or terrifying character, the delirium is not always so: occasionally the appearances are droll and ludicrous, and the patient seems amused by them; at other times it turns on some matter of business, as settling of accounts or telling of money, and the patient is in a perpetual bustle, and his hands are constantly full of business. The predominant emotion with the delirious patient is fear, and in his efforts to escape from an imaginary enemy, he may be guilty of a murderous assault, or, as is more frequently the case, may take his own life; and hence he requires to be very carefully watched. "The strong features of this complaint," says Sir T. Watson, "are sleeplessness, a busy but not angry or violent delirium, constant chattering, a trembling of the hands, and an eager and fidgety employment of them. . . . The tongue is moist and creamy; the pulse, though frequent, is soft; the skin is perspiring and most commonly the patient is drenched in sweat." The delirium continues until the patient sinks into a sleep, from which he awakes comparatively rational, or dies from exhaustion. In such cases death is often sudden, the patient rising for some trivial purpose and falling in a faint, from which he never recovers; or at length, after passing nights without sleep, he sinks into a state of coma, which terminates in death. This disease, however, is rarely fatal, unless where the strength of the patient has been seriously impaired by long continued excesses.

Treatment.—The great remedy is sleep, and the best means of inducing this is by opium, which is to be given in large doses, and frequently repeated, until the desired effect follows. Sometimes it is necessary, in order to procure sleep, if the patient is in a very exhausted state, or if the disease has been brought on by the cessation of an accustomed stimulus, to allow the patient a certain quantity of his ordinary beverage; but this should not be continued longer than he can do without it. Chloroform has also been recommended as a means of procuring sleep when opium fails, or better probably than either will be found to be the hydrate of chloral (see CHLORAL). Powdered capsicum in 30 grain doses, repeated in three or four hours, if necessary, will often procure sleep

under such circumstances. Some medical men recommend large doses of digitalis, but the nature of this renders it unadvisable in the hands of any but a medical man. The strength should also be supported by beef-tea, milk, raw eggs, etc., and sometimes a cold shower bath affords great relief. This disease is to be carefully distinguished from inflammation of the brain, with which it has many symptoms in common for bleeding, which is resorted to in the latter disease, would be of the utmost danger in this. (See DELIRIUM, OPIUM, CHLOROFORM, DIGITALIS, CAPSICUM.)

DELIVERY. (See CHILDBED, PARTURITION.)

DELPHINIUM, *del-fin'-e-um*, a genus of plants belonging to the Nat. order *Ranunculaceæ*. The flowers and the root of the *Delphinium Consolida*, or larkspur, are diuretic, emmenagogue, and vermifuge. One dram of the flowers placed in 1 pint of hot water, and boiled down to $\frac{1}{2}$ a pint, is an excellent remedy for cholera morbus. It may be sweetened and given in teaspoonful doses every hour or two until relief is obtained. The seeds of the *Delphinium Staphisagria*, or stavesacre, are cathartic, emetic, and anthelmintic. They are seldom used internally; the bruised seeds externally, are used to destroy vermin. Delphinium owes its active properties to the alkaloid delphinia. It has obtained some repute as a remedy in neuralgia and rheumatism. It is used both externally and internally. Dose of delphinium, from $\frac{1}{2}$ to 1 grain, three or four times a day.

DEMENTIA. (See INSANITY.)

DEMULCENTS, *de-mul'-sents* [Lat. *demulceo*, I soften], is a name given to such medicines as are especially useful in obviating the action of acrid and stimulating matters, and that not so much by correcting or changing their nature as by involving them in a mild and viscid fluid, which prevents their acting, or by covering the surface exposed to their influence. They are generally divided into two classes, mucilages and expressed oils. In the former are almonds, coltsfoot, Arabic and several other gums, linseeds, mallows, liquorice-root, barley, oats, wheat, sago, and starch; in the latter, most European and many foreign oils, fat, and other animal substances, including hartshorn-shavings, gelatine, and isinglass, spermaceti, and wax. They are principally used in catarrh, diarrhœa, dysentery, gravel, and a few other complaints.

DENGUE, OR BREAK-BONE FEVER, *den'-gā*, is the name of a disease that has, on several occasions, made its appearance in the Southern States, and the East and West Indies, and is characterized as a severe inflammatory fever, accompanied with rheumatic pains in the joints and muscles, and a cutaneous eruption that usually makes its appearance upon the third or fourth day. Though very severe, it is not often fatal, and usually terminates in a few days with a copious discharge

of perspiration. It is regarded as scarlet fever, combined with severe rheumatic pains in the limbs and joints. It demands no special treatment beyond opiates to relieve the pain, and purgatives, or an emetic, to subdue the fever.

DENS, *denz*, is the Latin term for a tooth; in the plural, *dentes*; whence come such English words as dentist, dentition, dentifrice, etc. (See TEETH.)

DENTIFRICE, *den'-te-fris* [Fr.], a substance, usually in the form of a powder, used as an aid in cleaning the teeth. Camphorated chalk is one of the most generally used dentifrices. Cuttle-fish shell and charcoal, reduced to fine powder, are extremely useful as detergents. Pumice-stone is also employed when the teeth have become dark-colored. Catechu, cinchona, and rhatany are used in order to give astringency; myrrh to give odor, and bole Armenian to impart color to various tooth-powders. The following is a most excellent dentifrice for preserving the teeth, and it is especially useful when the teeth and gums are tender: 2 ounces of borax, 3 pints of water, 1 teaspoonful of tincture of myrrh, 1 tablespoonful of spirit of camphor. Mode: Dissolve the borax in the water, and before it is quite cold add the myrrh and spirit of camphor. Bottle this mixture for use. Wash the teeth daily with a soft brush, with this mixture diluted, in the proportion of 1 wine-glass of the mixture to $\frac{1}{2}$ pint of tepid water. (See TEETH.)

DENTIST, *den'-tist* [Ital. and Sp. *dentista*, Fr. *dentiste*], one who devotes himself to the study of the diseases of the teeth and their treatment; called also surgeon dentist and dental surgeon. (See TEETH.)

DENTITION, *den'-tish-un*, is one of the most important processes of infantile life; for during its course the little patient is subject to many trying diseases, such as convulsions, cough, eruptions upon the skin, and disordered bowels; and great care and attention will be necessary at this period. Children cut their teeth at different ages, the most common time at which this process begins being at the end of the seventh month; but instances have been placed on record in which children have been born with teeth already through the gums, others have cut them at the age of three months, while in some cases teeth have not appeared till the second or third year, and in rare instances, adults have been met with who have never had any. The first set of teeth, or the temporary or milk teeth, are twenty in number, and are generally produced in the following order—those in the lower jaw being a little in advance of those of the upper: the two lower front teeth are the first to be produced, then the two upper, and these are soon followed by the remainder of the lower and upper front teeth; and in the course of a few months the lateral and posterior grinders of both jaws make their

appearance. When the gums are hot, tender, red and swollen, and the child is cross and fretful, the part affected should be lanced over the protruding tooth, which is evidently pushing its way to the surface with great difficulty, and may, if not assisted, give rise to a severe attack of infantile convulsions; and in some cases, this operation will have to be repeated from time to time, as circumstances may require. Should the little patient become convulsed from the irritation thus set up, cold water should be freely dashed upon his face, and his body should be immersed for ten minutes or a quarter of an hour in a hot bath, or one containing hot water mixed with mustard, so as to bring the blood as much as possible to the surface and relieve internal congestion. Mustard poultices may be applied to the nape of the neck, or to the calves of the leg, and the following aperient powder should be given:—

Take of Scammony powder.....Three grains.

Calomel Three grains.—*Mix.*

Let it be taken immediately in a little preserve.

(The above prescription is intended for a child a year old, and must be varied in strength according to the age of the infant.)

The surgeon should be summoned at once, and he will examine the sufferer's gums, and if necessary, relieve the local irritation by gently incising them with an ordinary gum lancet, and in many cases of this kind, the convulsions cease at once upon the performance of this simple operation, thus plainly showing that all the irritation was caused by the difficult advance of the protruding tooth. After the child is taken from the warm bath, its trunk and extremities should be gently rubbed, and he must then be placed in a warm blanket near a small fire. About the end of the seventh year of childhood, the temporary or milk teeth begin to loosen and drop out, and are gradually replaced by the second, or permanent teeth. The former are twenty in number; but the latter, including the wisdom teeth, which are cut later in life, consist of thirty-two. The process of second dentition is easily accomplished, and is not attended by any diseases as in the case of the cutting of the milk teeth.

When the child is feverish, the warm bath and a small dose of mindererus spirit will be useful. The heat of the child's mouth may induce the desire for the breast too frequently, in order to obtain the grateful relief of moisture: in this there is need of caution; a little lime-water or barley-water may at times be given instead.

The best articles of diet for the weaned child during the active progress of dentition are arrowroot made with water, a little sweet milk added; and isinglass dissolved in equal parts of milk and water, so as to resemble arrowroot in consistence.

If the bowels are disordered, as they are apt to be, let a gentle laxa-

tive be first administered—less than a teaspoonful of castor-oil: after its operation a little lime-water may be given—a teaspoonful repeatedly. To a child under a year, $\frac{1}{2}$ grain of Dover's powder may be administered night and morning; to one older, 1 grain.

If the child have difficulty in making water, the warm bath often brings relief; and in addition, a few drops of the wine or syrup of ipecacuanha, and 1 or 2 drops of the liquor potassæ may be given.

When the gum is exceedingly red and swollen, a leech may be applied at the angle of the jaw, as in such a condition the employment of the lancet would be extremely painful, and unhealthy action in the gums might follow its use.

During the progress of teething, certain forms of scalp eruption are very prone to appear, more particularly one which, in the first instance, consisting of minute vesicles, is afterwards, by their rupture and the escape of their watery contents, converted into a thin scab; which scab, becoming dry, in time separates: fresh vesicles, however, appear, and the head is at one part and time dry, at another moist. The ears generally are swollen, and behind them there are cracks with watery fluid occupying them. In another form of eruption the scab over the scalp is much denser, from the rupture of little pustules. The hair, in both forms, assumes an unhealthy appearance, lying matted on the head, and often dropping out. These eruptions almost invariably disappear in course of time, and while teething progresses they should be very cautiously interfered with. When very dry, a little glycerine will relieve the disagreeable irritation they occasion. When, on the other hand, they are moist, a little flour or violet puff may be dusted behind the ears and over the neck, down which they are apt to creep. Should they continue after dentition is complete, and the means now mentioned prove ineffectual, an alkaline lotion (carbonate of soda or baking soda, $\frac{1}{2}$ dram to 1 dram, in 8 ounces of water) may be alternated with the glycerine; the former when the head is moist, the latter when dryness of the scalp exists—the head being at the time protected from the atmosphere by a covering.

While the changes taking place in the mouth of the child during the second dentition are not attended by an equal or the same constitutional affection as so often occurs in that of the infant during the first, there is often room, while it continues, for increased watchfulness and care. In those who are predisposed, various nervous affections, as Saint Vitus's dance, and epilepsy, are not unapt to be developed; and unless care be exercised, the general health may become more or less depraved. (See CHILD, TEETH.)

DEOBSTRUENTS, *de-ob'-stru-ents* [Lat. *de*, and *obstruo*, I obstruct], is a term applied to such medicines as have the property of removing

obstructions in any part of the body, especially in the lymphatic system. Mercury, iodine, bromine, and podophyllin are the principal deobstruents.

DEODORIZER, *de-o'-dur-ize-ur* [Lat. *de*, from, and *odor*, an odor], is a term applied to such substances as have the power of destroying foetid smells. One of the most common and valuable of these is chloride of lime. (See DISINFECTANTS.)

DEPILATORY, *de-pil'-a-tur-e* [Lat. *de*, from, and *pilus*, a hair], is a term applied to certain chemical substances employed for removing hair from the skin. Formerly it was usual to apply pitch to the part to be denuded, and then to pull it forcibly away; but this rude practice is now discontinued. Most of the depilatories to be purchased contain orpiment, and as this is an arsenical preparation, its employment is dangerous. One part of quicklime and two parts of carbonate of soda or baking soda, mixed and formed with water into a paste, and then applied to the part, will be found to be a good depilatory.

DEPRESSANTS, OR CONTRA-IRRITANTS, *de-pres'-sants*, a general term applied to certain medicines which have the power of subduing excessive action. Thus sedatives and refrigerants are employed to subdue excessive action in the blood; narcotics and antispasmodics to subdue and soothe nervous excitement, or pain.

DERBYSHIRE NECK. (See GOITRE.)

DERIVATIVE, *de-riv'-ativ*. The term, as used in Medicine, signifies whatever tends to withdraw diseased action from any part of the body, by means of action—not necessarily diseased—set up in some other part. Thus, bleeding from the lungs may be stopped by the derivative action exerted by the flow of blood from a vein opened in the arm, or inflammation affecting the eyes may be relieved by a blister, or a seton, at the back of the neck. Derivatives may be either natural or artificial. The principal natural derivatives are, either the discharge of blood, or the increase of natural secretions; thus, bleeding from the nose may act derivatively, as regards the brain, or the bleeding from piles as regards the liver, or parts within the abdomen; or an attack of diarrhoea may also act in the same way. Boils, cutaneous eruptions, ulcers, etc., also act as derivatives, but in many cases approach the class of counter-irritants. Artificial derivatives, such as blood-letting, blisters, etc., may be referred to under their proper heads.

DESPAIR. (See PASSIONS.)

DESQUAMATION, *des-kwa-ma'-shun*, is the separation, in scales or flakes, of the outward or scarf skin. Strictly speaking, desquamation is constantly going on on the surface of the body, and scales or scurf are constantly being separated in small and almost insensible quantity; but

after some inflammatory diseases, particularly those of an eruptive character, such as scarlet fever, measles, etc., a much more copious desquamation takes place, and the scarf skin separates in large pieces. The same thing occurs after irritants, such as mustard plasters, blisters, etc., have been applied to the skin. Desquamation, whether natural or the consequence of disease, is always facilitated by the use of the tepid or warm bath. (See SKIN; SKIN, DISEASES OF THE.)

DETERGENTS, *de-ter'-jents* [Lat. *detergo*, I wipe away], is a name given to such medicines as cleanse and remove viscid humors adhering to and obstructing the vessels; also such applications as cleanse foul ulcers.

DETERMINATION, *de-ter-min-a'-shun*, is applied to the excessive flowing of the blood to any part, as a determination of blood to the head, etc.

DIABETES, *di-a-bé-teez*. [Gr. *dia*, through, and *bainomai*, I pass], in Medicine is a disease characterized by an inordinate flow of urine. Medical men recognize two distinct kinds of diabetes—the *diabetis insipidus*, or *diuresis*, in which there is merely a greatly increased flow of urine; and *diabetes mellitus*, in which the urine is found to contain a large quantity of saccharine matter. The former is an uncommon disease, and differs from the latter in presenting no saccharine traces. Persons of a debilitated constitution and in the decline of life, are most subject to this disease. It commonly comes on slowly and imperceptibly, without any apparent disorder of the system, and may exist for considerable time before it attracts any notice.

Causes.—Of the causes or treatment of this disease, unfortunately, little is satisfactorily known. Some refer it to a diseased state of the kidneys or liver, others of the lungs, stomach, or nervous system. It may be produced by intemperate habits, or whatever tends to impair the system and produce debility, and there is believed to be a predisposition to it in certain constitutions.

Symptoms.—One of the most constant symptoms of this disease is an inordinate degree of thirst; and yet the quantity of urine passed daily is usually much greater than that of the liquids drunk. A voracious appetite is also a usual characteristic of this disease. After a time the constitution manifestly suffers; the body becomes emaciated, the strength and vigor fail, the pulse is frequent and small, a slight degree of fever prevails, and the skin is dry and rough. There are also usually aching pains in the back and loins, and uneasy sensations along the urinary passages. Although too often a fatal malady, it is not necessarily so, and cases have been known of a perfect recovery after the disease has been well established. In other cases it goes on by slow or rapid steps,

sometimes extending over years to a fatal termination. In this last case the symptoms gradually become more and more intense, until at length the patient sinks from exhaustion, or is cut off by dropsy, consumption, or some other incurable disease.

Treatment.—The measures resorted to in its treatment are rather of a palliative than a remedial nature. It is possible, however, by judicious treatment, if not to remove, at least to mitigate the symptoms and to ward off the issue for a number of years. The regulation of the diet constitutes by far the most important part of the treatment, care being taken to exclude, as far as possible, all articles of food that contain sugar, or are readily converted into saccharine matter. Animal food ought, therefore, to constitute as large a portion of the diet as possible. All kinds of fruit must be avoided, as well as vegetables, as much as possible, particularly such as contain a large quantity of starch, as potatoes. Bread, too, should be used very sparingly, and should be well fermented and somewhat stale. Bran-bread is preferable to the common kind. Beyond this, the treatment should be principally directed to restoring and strengthening the tone of the system by abundant exercise in the open air, and the use of tonics and such medicines as tend to soothe the nervous system. Opium in large and continued doses is said to have a very beneficial effect in this disease, and an exclusively milk diet, methodically persevered in, is said to have been successful in effecting cures in several cases. The state of the skin is particularly to be attended to, and daily ablution of the whole body in warm or cold water is recommended. The Turkish bath, it is believed, might possibly prove useful in this disorder. Flannel should also be worn next the skin. (See DIET, EXERCISE, TONICS, MILK, ABLUTION, BATHS AND BATHING, FLANNEL, DEBILITY, ETC.)

DIACHYLON, OR LEAD PLASTER, *di-ak'-e-lon* [Lat. *Emplastrum Plumbi*], is composed of oxide of lead in fine powder 4 lb., olive-oil 1 gallon, and water $3\frac{1}{2}$ pints, boiled gently together, and kept simmering for four or five hours, constantly stirring. It forms an excellent defensive, or strapping plaster, for protecting or keeping together the edges of wounds, but is chiefly used as a basis for other plasters. (See PLASTERS.)

DIAGNOSIS, *di-ag-no'-sis* [Gr. *diagnosko*, I discern, or distinguish], is the art of discovering the nature of a disease, and of distinguishing it from other diseases of a similar nature. Much depends upon a correct diagnosis of disease, and the minute characteristics that frequently distinguish one disease from another render it often a matter of great skill and delicacy. If the true nature of a disease be not ascertained, a course of treatment may be pursued that may be followed by

very serious results. Nothing will compensate for a hasty and imperfect diagnosis, and evils innumerable spring from it. It is essential—in many cases at least—either to facilitate or enable the formation of an accurate opinion of a case of disease, that there should be perfect candor on the part of the patient towards the medical man consulted; and not only candor, but thoughtful consideration and communication of every circumstance which is, or may appear to be, connected with the illness. Whether it be hereditary predisposition, or personal transgression, nothing should be concealed. Females often permit prudery or mistaken feeling to interfere with their communications with a medical adviser; but one thing can be said upon this matter, if they cannot confide in him on these points, he is unworthy of their confidence at all, but the same resolution which induces the consultation, ought at the same time to give this resolve, to leave nothing untold connected with the state of health.

When it is reflected how strict an investigation is required at the hands of those whose lives are, and have been devoted to the subject, it ought to make unprofessional persons doubly cautious in dealing with disease. Either our physicians, most of them men of character and of high honor, make a parade of their diagnosis of disease, and devote their lives of labor to deceive the public, or are themselves deceived, or quackery and quack medicine must be impudent lies and wicked deceits. The individual who purchases a quack nostrum, can either have no idea of the disease—if he has one—under which he is suffering, or only the crude idea—diagnosis—of his own judgment, and upon the faith of this, he prescribes for himself the unknown compound of an unknown—to him at least—individual, on the faith of some lying advertisement. (See MEDICAL ADVICE; OPINION, MEDICAL; PROGNOSIS, PHYSICIAN, SURGEON, SYMPTOMS, DISEASE; QUACK, QUACKERY, ETC.)

DIALYSED IRON. (See IRON.)

DIAPHORETICS, *di-a-fo-ret-iks* [Gr. *diaphoreo*, I carry through], are agents used in the practice of Medicine which “determine to the skin,” or produce perspiration or sweating. The most useful diaphoretics for domestic purposes are:

AMMONIA.—In the form of carbonate, when stimulation is required at the same time, and in the form of acetate or spirit of mindererus, which is one of our most certain and safest diaphoretics. (See AMMONIA.)

ANTIMONY: In the form of the tartrate of antimony, in small doses, when fever is excessive, and the true James’s powder, which is the safest form for children. (See ANTIMONY.)

BATH—Tepid, warm or vapor, or used as in hydropathic establishments, by means of the wet sheet and blankets. (See BATHS AND BATHING.)

IPECACUANHA.—In any of its combinations. (See IPECACUANHA.)

OPIUM.—Particularly in its combination with ipecacuanha, named Dover's powder. (See DOVER'S POWDER, OPIUM.)

To the above may be added, sweet spirit of nitre, gin, and diluent drinks of all kinds, sometimes cold, but generally warm, and exercise. There are many other agents employed in medicine as diaphoretics. (See SWEET SPIRIT OF NITRE, GIN, EXERCISE.)

As there is always a degree of uncertainty, especially in some constitutions, in the action of diaphoretic medicines, when they are taken, every means should be used to assist and promote the desired effect. Confinement to bed is absolutely necessary, and before retiring there, it is always well to put the feet in hot water for twenty minutes; the diaphoretic medicine should be used on getting into bed, and nothing more for three quarters of an hour, when the warm diluent drinks are to be commenced with, and may after that be taken very freely, and continued as long as the sweating process is kept up. If the warm diluent drinks are taken too soon after the medicine, vomiting will probably ensue, and so the object in view be defeated. Purgative medicine, which is likely to act during the operation of a diaphoretic, should be avoided; for the disturbance occasioned thereby will not only effectually counteract the desired process, but may, by checking it, aggravate the disease it was intended to benefit. Some persons promote the action of sweating by cold instead of warm drinks. In cases of much febrile heat and excitement, they may be useful; but, as a general rule, it is the safer plan to keep to the warm fluid. When sweating is produced, the person should always have flannel next the skin, never linen; and of course there must be sufficient covering to maintain the requisite temperature. If the person is laboring under infectious disease, additional care is of course requisite in the after disposal and purification of the woollen clothing. When it is thought desirable to check the sweating process, every source of chill must be avoided, the skin is to be dried with warm towels, and fresh clothing previously slightly warmed, put on, the coverings lightened, and the hands and arms gradually exposed. There is sometimes great difficulty in producing perspiration in certain constitutions. When such is the case, the medicines should be given, and other means resorted to, towards four o'clock in the morning—that is, just previous to the time in the four-and-twenty hours, when the body, either in health or disease, appears most liable to perspiration. (See SKIN, PERSPIRATION.)

DIAPHRAGM, *di'a-gram* [Gr. *diaphragma*, a partition], is the name given to that transverse muscle which separates the thorax or chest from the abdomen or belly. The diaphragm is largely engaged in laughing,

sneezing, sighing, sobbing, and other affections of the respiratory organs. Whatever occasions stoppage of the action of this muscle speedily proves fatal. It is subject to inflammation, called *diaphragmatitis*; but as this is rarely confined to the organ itself, but communicated either to the pleura or peritonæum, its symptoms and mode of treatment correspond with inflammation of these parts. (See PLEURISY, PERITONITIS.)

DIARRHŒA, *di-a-re'-a* [Gr. *dia*, and *rheo*, I flow]. The term diarrhœa is in very general use both amongst professional men and their patients, to signify a certain state of the system in which the action of the bowels is much perverted and increased, the evacuations being loose, liquid, and frequent, and attended with griping pains in the abdomen; the tongue is white and furred, the breath offensive, and there is no appetite; the patient is troubled with nausea and vomiting, and flatulent distension of the abdomen; the temperature of the body is not heightened, nor is the pulse increased in frequency.

Diarrhœa has been divided into several different species from the nature and appearance of the alvine discharges; thus in *bilious* diarrhœa the excreta are of a bright yellow color, and in the *mucous* form of the disease are freely mixed with mucus. When blood passes away with the fæces, it is called *dysenteric* diarrhœa; and in another species the food escapes from the bowels in the same state as it entered the stomach, having passed all the various secretions of the alimentary canal unacted upon. This affection is due to an increased action of the bowels, brought on by some foreign matter irritating their mucous lining and muscular coat.

Causes.—Diarrhœa has been traced to a great many different causes; it may be due to exposure to heat or cold, and it most frequently occurs during the hotter weather of summer and autumn. It is often caused by over-feeding, and the use of acrid indigestible food, such as shell fish, salads, cucumber, and various kinds of fruit. Sometimes it is the result of mental emotion, and at others of an impure atmosphere: thus medical students frequently suffer from this malady when their daily avocations in the pursuit of scientific knowledge render their regular attendance in the tainted air of the dissecting room absolutely necessary. Diarrhœa is a symptom attending many important diseases; it is very troublesome in pulmonary consumption, typhoid fever, and malignant disease of the bowels.

This affection is distinguished from dysentery by the absence of inflammation and ulceration of the mucous lining of the intestines, by there being less griping, and by the absence of blood in the liquid discharges.

Treatment.—The method of treatment will depend essentially upon the cause; if the disease be due to exposure to heat or cold, it will work its own cure, and all the interference from us that will be necessary is to restrict the diet, give diluents freely, and to keep the patient in an equable temperature. When the bowels are thus affected from over-feeding and other errors in diet, nature is trying by this means to effect a cure, and consequently we should be wrong in giving any astringent form of medicine, but must first order a mild aperient to correct the faulty condition of the stomach and act gently on the bowels, carrying off the irritating substance; for this purpose, no drug is so well suited as the best East India rhubarb, for after its purgative effects have passed away, the medicine does not cease to be active, but exerts then a slightly astringent action upon the bowels; it should be given thus, in the form of a draught:

Take of Powdered rhubarb, East India.....Twenty to thirty grains.
 Carbonate of magnesia.....Twenty grains.
 Peppermint waterTwo ounces.—*Mix.*

Give the draught immediately. Next to rhubarb, probably the best aperient for this purpose is the old fashioned castor-oil. A tablespoonful may be given in these cases conjoined, if there is a good deal of pain, with 10 or 15 drops of laudanum

When the bowels have already been assisted in their action of trying to rid themselves of the offending substance, should the purging still go on, a little astringent medicine may be given, thus:

Take of Prepared chalk, in powder.....Two and one-half drams.
 Powdered gum acacia.....Three drams
 Laudanum.....Eighty drops.
 Tincture of catechuOne ounce.
 Pure water.....Eight ounces.—*Mix.*

Give 2 tablespoonfuls every four hours till the purging ceases.

Diarrhœa due to mental emotion will soon pass away when the excited mind is at rest. When the purging is caused by a tainted atmosphere, the invalid should be removed for a time from its noxious influence, and should be allowed plenty of fresh air and healthy exercise.

When diarrhœa occurs as a symptom of other more important diseases, it must be met by general principles, according to the morbid condition giving rise to it. Thus in consumption and gastric fever, it is the result of an ulcerated and irritated state of the mucous membrane of the bowels, and is then very difficult to check. Chalk mixture may be tried in vain, and opium prove itself useless; and should this actually be the case, we must resort to small doses of sulphate of copper, or nitrate of

silver. These may be given in $\frac{1}{4}$ or $\frac{1}{2}$ grain doses, combined with bismuth and confection of roses, every three or four hours, thus :

Take of Nitrate of silver or sulphate of copper. . . Three grains.
 White bismuth Twenty grains.
 Confection of roses sufficient to make six pills.—*Mix.*

One to be taken every four hours until the purging ceases.

The mineral acids are very useful in cases of simple diarrhœa when astringents are required.

Take of Dilute sulphuric acid. Two drams.
 Laudanum. One dram.
 Infusion of gentian. Six ounces.—*Mix.*

Take 2 tablespoonfuls every four hours. Dilute nitric acid may be substituted in the above prescription.

In the diarrhœa of children, during dentition, the following powders are useful :

Take of Gray powder. Ten grains.
 Carbonate of magnesia. Ten grains.
 Dover's powder. Five grains.—*Mix.*

Divide into 10 powders, 1 to be given every four or 6 hours.

CHRONIC DIARRHŒA.—Diarrhœa may occur as a chronic, or long-continued affection, lasting for months or years ; but these cases depend on such a variety of causes and influences, and require so much care in treatment, that they can only be advantageously managed by a medical adviser, and ought as soon as possible to be put under the care of one. In these and in all cases of bowel complaint, diet exerts great influence ; generally speaking, the preparations of milk and of the grains are most suitable, such as arrowroot, sago, tapioca, rice, etc. When broth is given, it should be in small quantity and of tolerable strength ; it is improved by the addition of gelatine, and of well-boiled rice. Alum whey is sometimes found useful in these cases. In chronic diarrhœa, ipecac, in doses of 2 or 3 grains, three times a day, has often effected a cure. In the absence of medical aid, the patient should try the decoction of blackberry (*Rubus Villosus*), made by steeping a handful of the smaller roots, or the bark of the larger ones, in a pint of boiling water. (See RUBUS.) Of this, 3 or 4 fluid ounces may be taken every three or four hours. From $\frac{1}{2}$ to 1 teaspoonful of the fluid extract of blackberry, when it can be procured, is better still. Fluid extract of logwood, in similar doses, will also be found useful, and also the fluid extract of cranesbill (*Geranium Maculatum*) in same doses.

Preventive treatment.—As diarrhœa is frequently the result of eating unripe or impure fruit, great care should be taken, especially in the hot weather, to eat only fruit that is wholesome and ripe, and vegetables

that are unirritating. Green corn and beans, when they come in season, should be partaken of cautiously, and green cucumbers be avoided as the essence of trouble. A chill often causes diarrhœa, therefore, some covering should be used at night, even in the very hottest weather, and, in persons disposed to this trouble, it is a good plan to wear flannel next the abdomen at all times. If pure water cannot be procured, it should be filtered or boiled before using. Bathing the chest and abdomen daily with cold water, or water and vinegar, lessens the tendency to this disease. There is, probably, no disease that is more under control, by the observance of care in eating and drinking, and the other rules noted above. (See DYSENTERY, BILIOUS CHOLERA, AUTUMNAL COMPLAINTS, SUMMER COMPLAINT, CHOLERA, CHLORODYNE, ETC.)

DIASTOLE, *di-as'-to-le* [Gr. *dia*, and *stello*, I stretch], is the dilating action of the heart, or that by which its cavities are opened to attract and receive a portion of the current of blood, after a previous portion has been expelled by the systole or contracting action of the organ. (See CIRCULATION OF THE BLOOD, HEART.)

DIATHESIS, *di-ath'-e-sis* [Gr. *diatithemi*, I dispose], is a term used in medicine to indicate states of constitution peculiarly predisposed to certain diseases, such as scrofula, cancer, gout, etc. Peculiar diathesis is for the most part hereditary.

DIERVILLA CANADENSIS, *di-ur-vil'-la can-a-den'-sis*, or honey-suckle bush, a shrub belonging to the Nat. order *Cuprifoliaceæ*. It grows in hedges and thickets throughout the United States and Canada. The leaves, twigs and roots are the parts used. It is diuretic, astringent and alterative. A cold infusion, taken freely has been found very useful in inflammation of the bladder and in gonorrhœa. The bruised root and leaves applied to the surface in the inflammation caused by the poison ivy soon relieves the pain and the burning. It may be taken without stint. (See INFUSION.)

DIET, *di'-et* [Gr. *diæta*, regimen]. *The diet of the infant*, Nature, with unerring wisdom, has provided; and she has indicated, by those remarkable changes in the mouth, when it is that other articles of food are to be employed. These should, in the first instance, be farinaceous alone, rusk, arrowroot, sago, rice, being the chief and most suitable; and with such and such like, cow's milk being substituted after weaning for the mother's or nurse's, may the child during the first two or three years of life be fed. There may occur circumstances rendering the occasional—even frequent—employment of other articles (animal soups, for example) requisite; but in the case of a healthy child the former restricted plan is vastly preferable. While yet a child—in other words, during the first seven years—unless to meet certain indications, it is well to permit the

farinaceous articles to enter largely into the diet as a whole: these, including bread, with well-cooked vegetable broth, animal soup, the lighter vegetables and the gravy of roasted meat, should be the staple; tender chop and steak, or fowl, the occasional, or even frequent varieties.

There comes a time—and the occurrence of the second dentition must be regarded as marking it—when the regular use of more substantial food is required; and, after the sixth year, it is probable that the due admixture of animal and vegetable food is the most suitable and appropriate diet. An early hour of the day is best suited for the principal meal of children. The growing youth, with keen appetite, often requires to be repressed rather than encouraged, in respect to food, though there is no doubt that at such a time, a liberal allowance of what is nourishing is demanded.

Of ordinary animal food, beef and mutton are the most nutritious; and, when well cooked—particularly roasted—may be considered as easily digested as any other. Old meat is certainly preferable to young in both respects—beef to veal, mutton to lamb. Roast surpasses boiled and stewed is inferior to both. Steak and chop, with roast beef and mutton, form the very best varieties. White flesh (fowls and game) is an excellent occasional substitute for so-called butcher's meat; so, also, is white fish.

It is undoubtedly easier for the stomach, and generally speaking, a better plan, to partake in moderation at dinner, of a few different articles rather than to be restricted to one. A dinner composed of a little soup, followed by a moderate allowance of beefsteak, mutton or beef, roasted or otherwise cooked, or one composed of white fish, with any of the articles named, is better than if the whole repast had consisted of beefsteak, which under such circumstances, with a good appetite, would be likely to be taken in too large amount. While beef and mutton are specially referred to, a variety may be secured from time to time by substituting pork, veal, lamb, venison, etc.

A well-cooked pudding is a wholesome addition to dinner; pastry and apple dumplings should be moderately and only occasionally indulged in. Fruits, as dessert, are not merely agreeable, but in the case of many persons exert a salutary effect; strawberries, gooseberries, currants, raspberries, etc., in summer; figs, prunes, apples, oranges, etc., in winter.

That element of food required to sustain life and impart strength is called albuminate. It has been ascertained that an able-bodied man weighing one hundred and forty pounds must have at least one quarter of a pound of this substance each day to keep his system in repair. Some kinds of food contain very much of this albuminate, others very

little. Lean meat and fish, and pease and beans belong to the first class, fruits and vegetables to the latter. They contain, however, a great deal of the warming element, which is just as necessary. To furnish this quarter of a pound of strength-giving element a man would require to eat five pounds of a mixed diet of meat, bread and vegetables, but he would at the same time furnish himself with a pound and a quarter of warming element.

It will follow from this, that a different diet is needed in summer than in winter. When the hot weather begins to come on, the system does not need as much of those substances that give heat, such as fat, and fat meats, sugar, starch, butter, etc., therefore those should be, to a great extent, given up, and instead the cooling vegetables; the melon, in moderation, when it agrees; the berry, spinach, etc., should be eaten. Due regard to these facts would save a great deal of summer disease. (See COOKERY FOR THE SICK, FOOD, ALIMENT, ALBUMEN, DIGESTION, DYSPEPSIA, ACIDITY OF THE STOMACH, FLATULENCE, COSTIVENESS, SLEEP, EXERCISE, HEALTH, STARVATION, TRAINING; RULE, LIVING BY; REGIMEN, ETC.)

DIETETICS, *di-et-et-iks* [Gr. *diatetike*], is that department of medical science which relates to the diet or ordinary food. (See FOOD, DIET.)

DIET FOR THE SICK. (See COOKERY FOR THE SICK.)

DIFFICULT MENSTRUATION. (See MENSTRUATION.)

DIGESTIBILITY OF FOOD, TABLE OF. (See FOOD.)

DIGESTION, *de-jest'-yun* [Lat. *digestio*, from *digero*, I carry to different parts, or dissolve], is the process by which food is fitted for the nourishment of the animal body. The whole process may be divided into:

The mastication or chewing of the food, and its mingling with the saliva or spittle.

The swallowing of the food.

The digestion of the food in the stomach, by means of the gastric juice.

The mixture of the food with the bile and juice from the pancreas, and its conveyance through the small intestines.

The passage of the remains of the food into and through the large intestine, or colon, during which it becomes acid, and mixed with the fæculent excretions from glands of that bowel.

The discharge of the remnants of the food from the body along with other excrementitious matters.

To the above may be added the passage of the digested and nutritious part of the food into the blood.

The first process of digestion, the mastication or breaking down of the food by the teeth, and its mixture with the saliva, is one of extreme importance. The teeth of man are evidently adapted for the two processes of cutting and bruising; the front or incisor teeth being constructed for the former purpose, the back, or molar, for the latter. These adaptations are well seconded by the action of the powerful muscles of the lower jaw, which give it a direct cutting, and a side to side or grinding motion; the morsel of food submitted to this mechanical action being at the same time kept admirably under it by means of the extraordinary mobility and sensibility of the tongue, whilst it is at the same time thoroughly moistened by the saliva or spittle, which is poured out abundantly from the salivary glands, which lie imbedded around the mouth and jaws; the same mechanical action which grinds the food, serving at the same time to press out the secreted saliva. This fluid, however, does not act simply as a moistener of the food, it exerts a distinct chemical or digestive power upon its starchy components, converting them into sugar, in which state they become fitted for absorption into the blood, a capability which starch does not possess. When the food morsel has been masticated, and moistened sufficiently—at least such ought to be the case—it is collected by the action of the tongue into a ball, and conveyed to the back of the throat or fauces, where it is consigned to the care of involuntary muscles, and passes for the most part from under man's direct control. Passing from the throat into the gullet, it is carried by the wave-like action of that tube into the stomach. This action is not, as some might imagine, a simply mechanical one; that is, the food does not drop into the stomach as it would into a bag, by means of its own weight, but it is carried thither by the muscular movements of the œsophagus, or gullet, by the same power that water is conveyed upwards through the gullet of the drinking horse or cow, or indeed in ourselves, as any one can testify who has drunk from a spring by stooping down to the water. The entire process of swallowing, particularly that part of it by which the top of the windpipe is protected during the passage of the food over it, is a series of beautifully connected actions.

When the food has been passed down the gullet, and has reached the stomach, it lodges in its left or larger extremity. As soon as the lining membrane of the organ feels the contact of nutriment, it becomes reddened, there is evidently increased flow of blood to it, and quickly, its peculiar secretion, the gastric juice, or solvent fluid of the stomach, begins to be poured out. This fluid is “clear, transparent, and viscid, without smell, slightly saltish, and very perceptibly acid,” its characteristic power being that of dissolving the chief components of

the food, and reducing the varied ingredients of a common meal to one homogeneous, gray-looking, pulpy, acid mass, which is called the chyme. This uniform mass, when formed, varies but slightly in perceptible character; when the food has been farinaceous, it is like gruel, but when much oily or fat nutriment is mixed with it, it has more of a creamy appearance.

The solution of the food, and its formation into chyme by the powers of the gastric juice, is much assisted by the muscular movements—alternate contractions and relaxations—of the stomach, which turn the mass over and over, and thoroughly incorporate it with the solvent fluid. When the chyme is fully formed, it is probable that the gelatine components of the food have been dissolved, and what are called its albuminous components, such as the curd of milk, or cheese, or the muscular flesh of meat, or the gluten of grain, have for the most part been reduced to the condition of a soluble albumen, fitted for absorption into the system. The action of the acid gastric juice, however, puts a stop to the conversion of the starchy ingredients of the food, into sugar, by the saliva; but this is resumed in the small intestines, when the acidity of the chyme has been neutralized by the alkalinity of the bile and juice of the pancreas or sweet-bread, with which it becomes mingled, immediately after it passes or is passed through the opening at the right or smaller extremity of the stomach, into the duodenum, or first portion of the small intestines. This passage of the chyme from the stomach into the intestines, is effected as each successive portion is perfectly formed, that is, has become of semi-fluid, perfectly smooth consistence; for in a healthy condition of the digestive organs, should a portion of solid food attempt to pass the muscular valve at the pylorus, or place of exit, it is immediately closed against it, and the morsel passed back into the stomach. As already mentioned, the chyme has no sooner passed from the stomach into the small intestines, than it becomes mingled with the bile, which is continually distilling into them from the liver, and with the juice from the pancreas or sweet-bread. The effect of this admixture is to neutralize the acidity of the chyme. The action of the saliva in converting the starchy matters into sugar is now resumed, and is probably assisted by the fluid from the pancreas, and the oily principles of the food are converted into a milky-looking emulsion, in which state they are fit for absorption into the system. The digested and altered food mass is now passed slowly through the small intestines by their muscular, vermicular, or wave-like movements; during this passage, the nutrient portions are absorbed, partly by the blood-vessels, and partly—more particularly the oily emulsion portion—by the lacteal absorbent vessels, until the now almost exhausted food reaching the

valve-like opening into the large bowel, or colon, is discharged into it. Here the food mass again becomes acid, and this change is supposed by some, and not improbably so, to be of the nature of a second digestion, to ensure the perfect solution of any matters which may have escaped the first acid digestion in the stomach. A more striking change, however, is effected, for here the contents of the bowels assume their natural fecal or excrementitious character, and acquire their characteristic odor from being mingled with used-up matters thrown out or excreted from the system at large, from the small glands with which the lining membrane of the large bowel is studded. The absorption of the nutrient matters from the chyme requires a little explanation.

The process is now considered to be largely shared in by the blood-vessels, but much of it is doubtless effected by the lacteal vessels, which, indeed, were at one time considered to be the sole agents for the purpose. These little vessels are abundantly distributed over the small intestines. By the lacteals, the chyle, or milky-looking fluid absorbed from the intestines, is conveyed through a set of small glands—the mesenteric—after passing through which, the chyle, this extract from dead food, seems—if we may so speak—to become in some degree vitalized; it acquires power of coagulating, and assumes a red tinge when exposed to the air. The chyle from the various smaller lacteal vessels is now collected in the larger trunks, which coalesce at one point, and from one main vessel, the thoracic duct, which runs up and lies close upon the spine, till, arriving at the neck, it turns down and opens to discharge its contents into the general current of the circulation at the junction of the large veins of the head and neck with that from the arm.

Such is the marvellous process by which man's material body is daily nourished, and its strength preserved and renewed.

One of the most frequent causes of disorder of the digestive function is insufficient mastication, either from want of teeth, from a habit of hurried eating, or from carelessness; many persons but half, or indeed scarcely at all, chew their food, which is swallowed in lumps, and of course, not being broken down, is unmixed with the due proportion of saliva. Fortunately, the solvent powers of the gastric juice are sufficiently active to compensate in the course of time for the imperfect performance of the first of the digestive operations; but it must be evident to all, how much longer and more laborious the process must be of dissolving a solid lump of meat or potato, than of one well broken up and opened up to the operations of the gastric juice; it must also be evident, that in the case of farinaceous and vegetable food, insufficient admixture of saliva must occasion insufficient digestion or conversion of the starchy matter into sugar, and that, therefore, a portion of the food consumed

may become useless. Another evil resulting from imperfect mastication, is the rapidity with which food is introduced into the stomach, so that, probably, the organ is overloaded before the natural sensation of appeased hunger can make itself felt.

Many persons again hurry over their meals, with minds intently engaged on something else; the food is swallowed as quickly as possible, and the scarcely interrupted mental effort or business anxiety is resumed; or it may be active exertion at once engaged in. Now, it is a law of the animal economy, that all the functions of the living body, and those which are only periodically called into exercise more than others, require for their perfect performance, some additional access of nervous power, and some increase in their usual supply of blood, whilst the peculiar function is in active operation. With the stomach this is peculiarly the case; the disinclination for exertion, and the slight sensation of cold which generally follow a full meal, are the results of the call made upon the nervous energies and upon the circulating blood by the stomach, during the first stages of digestion. These sensations are more felt if the individual remains quiet after a meal, less so or not at all, if active exertion, either of mind or body, is at once engaged in, and the reason for this is evident; in the first instance, the person who remains quiet permits the nervous power and the blood to be, as they ought, directed to the performance of the digestive function, and, consequently, their supply to the other portions of the body being diminished, incapacity for exertion, both of mind and body, is experienced; if, however, before the nervous and circulating energies have become fully directed towards the stomach, (or, indeed, if after they have, exertion is made by a strong effort of the will,) they are attracted by a still stronger power, either of muscular movement or mental exercise, the inclination for rest is not experienced; but this is attained at the expense of the stomach and of its digestive powers, the food is more slowly and perhaps imperfectly, digested. It is true that many persons go on for a great length of time, without apparent bad results, violating the laws of their own constitution, snatching hurried meals, and running off to business, or study, or exertion, immediately after; but the practice tells, in the course of time, and the extreme prevalence of disorder of the digestive organs, especially among the commercial and professional classes in this country, is evidence sufficient of the hurtful tendency of such practices. There is, of course, much variation in the injury which the digestive powers sustain, for some have these naturally much more active than others, and can with much more impunity impose upon them, but as a general rule, moderate rest, both of body and mind, is requisite for a short period after a full meal has been taken, to ensure the perfection and the continued healthy operation

of the digestive powers. If exertion is requisite, the meal should be made a light one, and the full supply of food delayed till rest can be taken. Somewhat similar consequences and enfeeblement of the function of digestion, are apt to occur if an individual makes a hearty meal when in a state of fatigue or exhaustion from exertion previous to the taking of food, even though quiet is observed after it; the nervous power being exhausted, cannot be sufficiently supplied to the stomach to support its efficient action.

Another frequent cause of disordered digestion, is excess of food, either at once, or by its too frequent repetition. It would seem that the healthy digestive power, and secretion of the gastric juice, is dependent in some degree upon the requirements of the system, and as the gastric juice can only dissolve a certain proportionate quantity of aliment, if more is taken than there is gastric juice to act upon it, it must be imperfectly or not all digested, and if it is not, it becomes subject to the same chemical laws as if exposed to heat and moisture out of the living body; fermentation, and, it may be, putrefaction, take place; gas—"wind"—is generated, acids are formed both in the aliment itself, and thrown out, probably by the efforts of the irritated stomach, and heart-burn, pain, and the many other uneasy sensations connected with indigestion are developed. Many of the causes of indigestion are undoubtedly traceable to other sources, but the consideration of those will be taken up in the article devoted to the subject. The digestive power of the stomach is remarkably interfered with, or even negatived, in many diseases, especially those of an acute or febrile character; it seems to lose almost entirely its power of secreting the gastric juice, and with it, of course, all power of digesting; if food is put into it, it is unacted upon, and is probably vomited after many hours, almost unchanged. There can be no question that this instinctive sympathy, as we may call it, of the stomach with the constitution at large, is wisely intended to prevent nutriment being introduced into the system, and into the blood, when it would either only tend to embarrass the curative powers of nature, or to aggravate the disease.

It may, perhaps, have puzzled the unprofessional reader that at times the digestive operations have been alluded to as if they had actually been witnessed by the eye, and such is the fact; for it happened that between thirty and forty years ago, an American physician—Dr. Beaumont—enjoyed the rare opportunity of experimenting upon, and witnessing with his eyes, the results of his experiments upon the healthy stomach of a living healthy man.

The subject of Dr. Beaumont's experiences was Alexis St. Martin, a young Canadian of good constitution and robust health, who was acci-

dentally wounded by the discharge of a musket, which carried away a portion of the skin and muscles covering the stomach, and perforated the organ. By good treatment, St. Martin recovered from the injury, but the opening into the stomach never closed. The case coming under the notice of Dr. Beaumont, he, fortunately for science, availed himself most fully and intelligently of the unique opportunity it afforded, and, by numerous well-conducted and accurately-recorded experiments, he cast light upon many unascertained points connected with the process of digestion, to some of which allusion will be made in future articles, particularly in that upon food.

For Dr. Beaumont's table, containing a long list of articles of food, and the time consumed in digesting each, see FOOD. (See also DIET, ANIMAL CHEMISTRY, ANIMAL HEAT, DYSPESIA, ALIMENTARY CANAL, STOMACH, ACIDITY OF THE STOMACH, FLATULENCE, PHYSIOLOGY; RULE, LIVING BY; REGIMEN, EXERCISE, HEALTH, ETC.)

DIGITALIS PURPUREA, *dij-e-ta-lis pur-pu-re-a*, or foxglove, a biennial plant belonging to the Nat. order *Scrophulariaceæ*. It is a native of Europe, but is cultivated in this country, both as an ornamental plant and for medicinal purposes. The leaves are the parts employed in medicine; and they owe their activity to a principle known as *digitaline*.

Digitalis is narcotic, sedative and diuretic. Administered in quantities sufficient to bring the system decidedly under its influence, it is apt to produce a sense of tightness, or dull weight in the head, vertigo, dimness or other disorders of the vision, and more or less confusion of thought. It sometimes also disturbs the bowels, and excites nausea, or even vomiting. Another and highly important effect is an augmented flow of urine. Besides these effects, digitalis has a remarkably sedative action upon the heart. This is exhibited in the reduction both of the force and frequency of the pulse, which sometimes sinks to fifty, forty, or even thirty strokes in a minute. In some instances, however, it undergoes little change; in others, only becomes irregular, and in some cases, it is said, it has occasioned an increase in frequency. Another peculiarity of digitalis is, that after having been administered in moderate doses for several days, without apparent effect, it sometimes acts suddenly, with an accumulated influence, even endangering life. It is, moreover, very permanent in its operation, which, having once commenced, is maintained for a considerable period, without fresh accessions of medicine. It is prescribed as a sedative in hypertrophy or enlargement of the heart, and in aneurism of the large vessels proceeding from it; in inflammatory diseases; in dropsy, on account of its great diuretic power; in hemorrhage, as a sedative. Digitalis is a

violent poison, and is one of those remedies which should never be administered without an accurate knowledge of their medicinal properties. Dose: of the fluid extract, 1 to 10 drops; solid extract, $\frac{1}{2}$ to 1 grain; tincture, 10 to 30 drops; digitaline, $\frac{1}{64}$ to $\frac{1}{32}$ of a grain. (See POISONS AND THEIR ANTIDOTES.)

DILATATION, *dil-q-ta'-shun* [Lat. *dilatatio*], is the expansion or enlarging of bodies after a state of contraction or compression. It differs from extension, as the latter is properly applied only to lines and surfaces, the former to bodies that spread open or enlarge in all directions.

DILL. (See ANETHUM.)

DILUENTS, *dil'-u-ents* [Lat. *diluo*, I wash away], are liquids administered to increase the fluidity of the blood, and render certain of the secretions and excretions less viscid. They likewise promote the operation of more active medicines, especially aperients and diuretics. Water is the simplest, and frequently the best diluent; or it may be made more agreeable by the addition of acid or other substances, or in the form of toast and water. Gruel, infusion of tea, mutton and chicken broth, beef-tea and such-like, come under this designation. Diluents are of great use in allaying the thirst of patients affected with fever or other inflammatory complaints, and are often very useful in subduing the more violent symptoms of the disease, and relieving the system by means of perspiration. The excessive use of fluids at meals, however, is hurtful to digestion. (See DRINKS.)

DIMNESS OF SIGHT. (See AMAUROSIS.)

DINNER, *din'-nur* [Ang.-Sax. *dynan*, to dine], is *the* meal of the twenty-four hours, the principal occasion on which the daily waste of the body is restored by food. At dinner, for the most part, the articles either of food or drink taken, are stronger and more stimulating than at any other meal, consequently its disposal makes the greatest demand upon the digestive powers. It matters not that what some persons call dinner, others would call supper, for by the designation is here meant the principal meal of the day.

The regulation of the meal as to time and circumstances, often requires more attention and care in relation to health than is bestowed upon it, either by medical men or the public. In more primitive times, and where primitive habits prevail at the present day, the timing of this principal meal, must obviously be very different from what it should be when taken in connection with the habits and modes of life of many in this country, particularly in our large cities. When persons, such as those engaged in country and agricultural work, rise very early, and are engaged in active muscular exertion in the open air, there

can be no question, that by the time of noon, the system is ready for, and requires a full supply of good nourishment; and the powers of digestion are fully equal to the task, even though the interval of rest be not very great, and that, further, half-a-dozen hours' work afterwards, pave the way for another substantial meal—such being the case with our agriculturists, the healthiest and strongest, probably, of our population—and people seeing this, have jumped somewhat hastily to the conclusion that the early dinner is the secret of health, forgetting the other accessories of fresh air and exercise, and in the case of the laborer, not over active minds. The case of mechanics and artizans generally, who begin the day early, is nearly, but not quite similar to that of the laborer; they require a good meal tolerably early in the day, but not having the advantage in many cases of the fresh air of the agriculturist, many of them might with advantage divide the meals a little more equally, diminish the dinner, and add to the meal made after work is concluded, more particularly when the dinner hour is short, or shortened by the necessity of walking home from the place of employment to the meal.

When the case of the professional and business classes is considered, it must be evident how completely the time for their principal meal must be altered by circumstances; beginning the day for the most part, some hours later than the operatives, making, generally, much less physical exertion, and working the head more, there is not the necessity for the principal meal being early in the day; moreover, the employments generally of the class in question, being more of the mind than of the body, and often of an anxious and thought-engrossing nature, they cannot in the midst of them cast loose the mind, or place it in the same careless ease as the physical laborer can do, consequently the digestive powers are interfered with. If these observations are taken in connection with those upon digestion in the article devoted to that subject, their force will be seen. (See DIGESTION.)

Undoubtedly, modern habits and luxury tend frequently to make even this principal meal, a much too abundant one, chiefly by tempting the appetite with a variety of food, and it is impossible to lay down any set rules on this head beyond that which every rational man must be well aware of, that none can perseveringly transgress the bounds of temperance, either in eating or drinking, without sooner or later, disease being the result.

Sleeping after dinner may suit a few persons, but it is not advisable for those of full habit of body. For the reasons already mentioned, the time immediately succeeding dinner should be one of easy relaxation, to the man of mental toil in particular. The use of wine, beer, or any stimulant, falls of course to be considered under the other articles more

directly bearing on these subjects. A cup of coffee is sometimes taken shortly after dinner; opinions differ as to the propriety or not of the practice; it will probably be found to be best regulated by individual experience; the practice, however, of taking tea or coffee two or three hours after the meal, is unquestionably a serviceable one amid the usages of civilized life, and assists the perfection of the latter stages of digestion. These diluents, however, ought not to be taken too strong, or too late in the evening, otherwise their effect upon the nervous system will interfere with sleep.

Some individuals of weak digestive powers are in the habit of taking a "dinner pill," for the purpose either of exciting the appetite, of stimulating the digestion, or of both. As a habit, the practice is bad, because it must be a substitute for more efficient and permanent means of improving appetite and digestion; occasionally, however, in some cases the dinner pill is useful as a temporary remedy. Eighteen grains of compound rhubarb pill, 6 grains of cayenne pepper, and 12 grains of extract of gentian, made up into twelve pills, of which 1 or 2 may be taken a quarter of an hour before dinner, will be found useful. The practice of taking spirits, or stimulant cordials or bitters before dinner, is highly injurious to the stomach, exhausting and irritating in a way that must interfere with digestion. A draught of cold water is a much better preparative; with persons of very weak powers, however, cold water either before or during the meal, depresses too much. (See BREAKFAST, LUNCHEON, SUPPER, MEALS, DIGESTION, DYSEPSIA, DIET, FOOD, EXERCISE, DRINKS, ALE, WINE, BRANDY; STIMULANTS, ALCOHOLIC; REGIMEN; RULE, LIVING BY, ETC.)

DINNER PILL. (See PILLS, DINNER.)

DIOSCOREA VILLOSA, *di-os-kó-re-a vil-lo-sa*, or wild yam, a delicate twining vine belonging to the Nat. order *Dioscoreaceæ*. It grows from Canada to the Gulf of Mexico, and in many parts it is known as colic-root, china-root and devil's bones. It owes its activity to an active principle named *dioscorein*. It is an excellent antispasmodic. In bilious colic it has considerable reputation; by some considered a specific; in cramp of the stomach or painful spasmodic affections of the bowels; in flatulence, and in nausea and vomiting of pregnant women, it is particularly recommended. Dose: of the fluid extract, 5 to 30 drops, repeated every hour, if necessary; infusion, 1 to 2 fluid ounces; dioscorein, 1 to 4 grains. (See INFUSION.)

DIOSPYROS VIRGINIANA, *di-os-pi'-rus vir-jin-e-a'-na*, or persimmon, the bark and fruit of an indigenous tree growing all over the United States, but reaching its greatest proportions in the South. It is tonic and astringent, and has been used with success in intermittent

fever, dysentery and hemorrhage from the womb. An infusion of the bark or fruit may be made by adding an ounce of either to a pint of water. (See INFUSION.) Dose: of the infusion or syrup, for adults, $\frac{1}{2}$ a fluid ounce; for infants, 1 teaspoonful.

DIPHTHERIA, *dif-the'-re-a* [Fr. *dipthérite*, from Gr. *diphthera*, a skin or membrane], may be defined as epidemic sore throat, depending upon the presence of a blood poison in the system, accompanied with the exudation of a leathery-looking membrane or skin upon the throat, attended by great prostration of vital power, and not unfrequently followed by a remarkable form of paralysis of certain muscles, of which more will be said hereafter. It may occur more than once in the same individual—that is to say, that though, depending upon the presence of a fever poison as distinct as that of typhus or scarlet fever, yet one attack does not afford immunity from a second.

Symptoms.—The disease frequently commences with a feeling of languor and debility, sickness, headache, and not unfrequently shiverings or chilly sensations. It is very remarkable that, in a short time after the commencement of the symptoms, the strongest man may feel as weak as a child, and require to be supported in walking to his bed-room. The throat affection comes on in different ways. Some patients awake in the middle of the night, and find the throat sore for the first time. In others it is preceded by a slight feeling of stiffness in the neck, and general uneasiness in the region of the throat. The tonsils and glands of the neck become tender and inflamed; there is difficulty of breathing; and sooner or later there appears the leathery membrane spoken of above. This does not, of course, present itself fully formed all at once, but in the form of little patches, which coalesce to form one continuous skin or membrane, which certainly resembles damp white leather. It is this skin or membrane which is so eminently characteristic of diphtheria, whether it occurs in the throat, or, as it sometimes does, in other parts of the body. In bad cases of the disease, the membrane increases in extent, and spreads to the surrounding parts—to the palate, uvula, gullet and nostrils, the cheek and gums, or even—in which case it is of course extremely perilous—to the larynx and windpipe. In cases where there is much of this membrane about the throat or mouth, there is always a great amount of sloughing, accompanied with fetor of the breath, while the membrane is being detached and separated, leaving a raw, ulcerated substance underneath, which is often very painful during swallowing, especially if any irritating substance is used with the food which the patient takes. The pulse is generally quick and very feeble, and the skin dry and hot. The tongue is generally furred; and there is great disinclination to take food, both on account of the difficulty of

swallowing, and the want of appetite. In very bad cases, occurring for the most part in those who live in dark and damp, ill-ventilated and ill-drained dwellings, the patient very soon sinks into what is called a typhoid state; mortification sets in in the affected parts; and there is not unfrequently hemorrhage, which may cause death to those already weakened by the disease. Most commonly, death takes place from exhaustion. It may, however, take place suddenly, owing to the formation of clots of the diseased blood in the heart or large blood-vessels. It not unfrequently happens, too, that the patient is choked by the membrane extending down into and blocking up the air-passages; death being either gradual or sudden from this cause.

Treatment.—The treatment of the disease must be divided into that necessary for the throat itself, and that required to support the system under the violence of the disease, assist the elimination of the morbid poison, and ensure a good recovery of the patient. Numerous substances have been applied to the throat in the shape of caustics, washes, gargles, etc. If a caustic be used, it is probably best to pencil the throat over with nitrate of silver, or with a solution of 2 scruples of this salt in 1 ounce of nitric ether. Chlorine water, or solution of chlorinated soda, may be used in the proportion of one part to eight parts of water, either as a gargle or as a wash, to be pencilled over the throat; or borax and water may be tried, or a gargle or wash made by adding 3 drams of tincture of the muriate of iron to a tumblerful of water.

It may be stated generally as an axiom, that all internal remedies of a depressing character, are to be avoided in this disease. Ten to 15 grains of chlorate of potash may be given in water to an adult every three or four hours; or, if there is a tendency to sloughing and to hemorrhage, 15 drops of the tincture of the muriate of iron, and 15 drops of the dilute hydrochloric acid may be added to this. Strong beef-tea and wine should be given at regular intervals, according to the patient's state; and in cases of great depression, brandy must be given instead of wine. Where there is inability to swallow, injections of brandy, beef-tea and quinine, should be administered. Dr. Lewis Smith, Clinical Professor of Diseases of Children at Bellevue Medical College, uses the following formulæ in the treatment of this disease:

Take of Sulphate of quinine.....Thirty grains.
Compound elixir of taraxacum.....Two ounces.—*Mix.*

Give one teaspoonful every 2 hours, and 1 teaspoonful of the following between each dose:

Take of Tincture of iron.....Two drams.
Chlorate of potash.....Two drams.
Simple syrup.....Four ounces.—*Mix.*

The citrate of iron and ammonia alone, or combined with carbonate of ammonia, may be given in 2 grain doses, in syrup, instead of the above, when the inflammation in the throat has considerably abated, or is moderate.

Dr. Smith also objects very strongly to the forcible removal of the false membrane, and also to the use of irritating applications. The use of the sponge or other rough instrument should be avoided, as likely to do harm. The local applications should be made with a camel's hair brush, or with the atomizer.

He recommends the local use of one or the other of the following mixtures:

1. Take of Salicylic acid.....Half an ounce.
Glycerine.....Two ounces.
Lime water.....Six ounces.—*Mix.*
2. Take of Carbolic acid.....Thirty-two drops.
Glycerine.....Two ounces.
Lime water.....Six ounces.—*Mix.*
3. Take of Carbolic acid.....Thirty-two drops.
Chlorate of potashThree drams.
Glycerine.....Three drams.
Water.....Five ounces.—*Mix.*

Half a dozen compressions of the back of the hand atomizer cover the surface of the throat more effectually than can be done by several applications of the brush, and it is usually not dreaded by the patient. In the absence of an atomizer, the following mixture may be applied with a camel's hair brush:

- Take of Carbolic acid.....Eight drops.
Solution of sub-sulphate of iron... ..Two drams.
Glycerine.....One ounce.—*Mix.*

When the membrane of the nose becomes affected, the best method of treatment consists in injecting into the nostrils with a small glass syringe, every third or fourth hour, 1 or 2 teaspoonfuls of the following mixture:

- Take of Carbolic acid.....Thirty-four drops.
Glycerine.....Two ounces.
Water.....Six ounces.—*Mix.*

It should be used about the same temperature as the blood, the head being thrown back and the eyes covered with a cloth.

Carbolate of soda has also been used successfully in this disease, as well as a new remedy named diphtherine, manufactured by Tilden & Co.

Preventive treatment.—All classes are liable to diphtheria where it is prevailing, but those suffer most severely who live on low, wet

grounds; in houses with imperfect drains, or surrounded by offensive matters, as privies, decaying animal or vegetable refuse; in damp rooms, as cellars; in overcrowded and unventilated apartments.

Diphtheria is not affected by either heat or cold, drought or rain.

Cleanliness in and around the dwelling, and pure air in living and sleeping rooms, are of the utmost importance wherever any contagious disease is prevailing, as cleanliness tends both to prevent and mitigate it. Every kind and source of filth around and in the house should be thoroughly removed; cellars and foul areas should be cleaned and disinfected; drains should be put in perfect repair; dirty walls and ceilings should be lime-washed, and every occupied room should be thoroughly ventilated. Apartments which have been occupied by persons sick with diphtheria should be cleansed with disinfectants; ceilings lime-washed and wood-work painted; the carpets, bed clothes, upholstered furniture, etc., exposed many days to fresh air and the sunlight; and all articles which may be boiled or subjected to high degrees of heat, should be thus disinfected.

When diphtheria is prevailing, no child should be allowed to kiss strange children, nor those suffering from sore throat, nor should it sleep with or be confined to rooms occupied by, or use articles, as toys taken in the mouth, handkerchiefs, etc., belonging to children having sore throats, croup, or catarrh. If the weather is cold, the child should be warmly clad with flannels.

When diphtheria is in the house or in the family the well children should be scrupulously kept apart from the sick, in dry, well-aired rooms, and every possible source of infection through the air, by personal contact with the sick and by articles used about them or in their room should be rigidly guarded. Every attack of sore throat, croup, and catarrh should be at once attended to. The feeble should have invigorating food and treatment.

Sick children should be rigidly isolated in well-aired unlighted rooms, the outflow of air being, as far as possible, through the external windows by depressing the upper and elevating the lower sash. All discharges from the mouth and nose should be received into vessels containing disinfectants, or upon cloths which are immediately burned, or if not burned, thoroughly boiled, or placed under a disinfecting fluid. (See ATOMIZER, AIR, BROMO-CHLORALUM, CHILDREN, COLD FEET, DAMP, DISINFECTANTS, DRAINAGE, HEALTH, SANITARY SCIENCE, VENTILATION, ETC.)

DIPSOMANIA, *dip-so-ma'-ne-a* [Gr. *dipsa*, thirst; *mania*, madness], a term lately applied to an inordinate or insane craving for alcoholic stimulants. It is a remarkable and at the same time a most melancholy

reflection, that those persons who have for a length of time indulged a craving for intoxicating drinks, sooner or later, are apt to lose all power of control over themselves, and, in fact, so conscious are they of this, that many of them would willingly submit to any kind of restraint which would deprive them of all opportunities of indulging in a vice, the pernicious consequences of which they are too well aware of. Continuance in such a degrading vice as drunkenness cannot fail to be followed by punishment, and those who are ignorant on the subject should not be left uninformed that the disease, if we may so call it, dipsomania, is a consequence of vicious habits unchecked; that it is one of the most dreadful punishments with which a poor human creature can be visited, so dreadful, that the sufferer is often only too anxious to put himself under voluntary restraint, making the humiliating confession that his reason—that proudest faculty of man—has lost its ascendancy over his evil passions, and that he has indeed sunk into a lower condition than the brutes that perish! It must, however, be distinctly understood that there is no such disease as dipsomania, which has not been self-acquired or *hereditarily transmitted*; that is, there is no disease of the brain known to physicians which causes this morbid craving for drink that has not itself followed as a consequence of indulgence in the evil habit. In connection with this, it may be well to remark that there is in the present day too great a readiness on the part of the public mind to attribute the commission of the most revolting crimes to insanity, and to regard a drunkard as an irresponsible being, a tendency which is as much against common sense as it is detrimental to public safety.

Treatment.—Proper treatment consists in the entire removal of stimulants, and the substitution of good nourishing food, exercise in the open air, and healthful occupation both of body and mind. Medicine is only of use in so far as to correct that derangement of the digestive organs which almost invariably is present in the debauchee. *Mineral acids, quinine, iron, etc.*, may be given to restore the tone of the system. Aerated waters of various kinds, either alone, or with the addition of some agreeable fruit syrup, lemonade, soda water, potash water, etc., may be taken as drinks at meals.

Bitter tonics, such as a strong infusion of Peruvian bark or quassia chips, should be taken at the same hours when it was usual to take the alcoholic stimulant. Dilute sulphuric acid, 10 to 15 drops three or four times a day; sulphate of quinine, 3 grains, morning and evening, and sulphate of iron, 1 grain thrice daily, may be given to restore the system. Coffee in the morning, and milk taken freely through the day, with abundance of animal food in the shape of fresh beef or beef-tea, will supply the place of the stimulant, and soon recuperate the debilitated body

and the enfeebled mind. The welfare of society demands that there should be institutions throughout the country for the voluntary or compulsory restraint of habitual drunkards, where they might be subjected to proper treatment, under the care of duly qualified medical attendants. A number of these establishments already exist in this country, known as inebriate asylums; and so far, the results of the treatment have been eminently satisfactory. (See STIMULANTS, ALCOHOLIC; INTOXICATION, DELIRIUM TREMENS, TONICS, DIET, FOOD, EXERCISE, RECREATION, REGIMEN, HEALTH, LONGEVITY, ETC.)

DIRCA PALUSTRIS, *dur'-ka pa-lus'-tris*, moosewood or leatherwood, a perennial shrub belonging to the Nat. order *Thymalaceæ*. It grows all over the United States and Canada. The bark is the part used in medicine; it is acrid, emetic and cathartic. The decoction, in doses of 1 to 4 fluid ounces, may be used instead of senega; but the latter is preferable. The steam from the boiling decoction is sometimes inhaled in pectoral or lung troubles, and not without considerable benefit. (See DECOCTION.)

DISCHARGE, *dis-tshär'je*, used as a medical term generally; means anything cast out from the body. It is often applied, however, in a more restricted sense, to the excretion of purulent matter solely.

DISCHARGE FROM THE EAR. (See EAR, DISEASES OF THE.)

DISCUTIENT, *dis-ku'-shent* [Lat. *discutio*, I destroy], is a term applied to remedies that discuss or disperse morbid matter.

DISEASE, *diz-eez'* [Ang.-Sax.], is a departure from the state of health in which the due balance between the several parts or properties of the animal frame is maintained. It is "a changed condition or proportion, in function or structure, in one or more parts of the body." Diseases of function are deviations from a standard furnished by physiology, and disease of structure a departure from a standard supplied by anatomy. These, however, are usually combined; for there is seldom structural disease without some disorder of function, and in many instances functional diseases are, or ultimately will be, accompanied by change of structure. The causes of the disease may be either intrinsic, existing within the body, or independent of any obvious external influence; or they may be extrinsic, having their origin without the body. The latter embrace all the external agencies that can operate either on body or mind—as temperature, air, food, poison, sensual impressions, and the like. Causes of disease, however, are often present without disease ensuing, some frames being less susceptible to particular causes of disease than others. Hence physicians distinguish two kinds of causes—predisposing and exciting; the former being circumstances which so influence the functions or structures of the body as to render it unusually suscep-

tible to the influence of particular exciting causes—that is, of such circumstances and agents as seem to more immediately operate in producing disease, especially when in a state of predisposition.

The predisposing causes of disease are said to be : 1, Debilitating influences ; 2, excitement ; 3, previous disease ; 4, present disease ; 5, hereditary constitution ; 6, temperament ; 7, age ; 8, sex ; 9, occupation. The exciting causes are so termed because the diseases seldom make their appearance unless they have been present ; and hence they have come to be regarded in the light of excitements to it. They are divided into cognizable and non-cognizable agents ; the former comprehending those physical and mental influences of whose existence we can take cognizance independently of their operation in producing disease ; the latter such as elude our senses, and whose existence we only infer from their morbid effects.

The cognizable agents are : 1, Mechanical influences ; 2, chemical influences ; 3, bodily exertion ; 4, mental emotion ; 5, excessive evacuation ; 6, suppressed or defective evacuation ; 7, defective cleanliness, ventilation, or drainage ; 8, excess and changes of temperature.

The non-cognizable facts are : Endemic, epidemic and infectious poisons, and are sometimes termed zymotic [Gr. *zuma*, a ferment.] The classification and arrangement of diseases according to their external characters, is termed nosology ; and that branch of science which more particularly regards the nature and progress of disease with a view to its cure, is called pathology. References from this article must be made to the work at large, for it bears upon the whole.

Perfect health consists in the uninterrupted action and perfect balance of all the functions of the body—this involving, of course, perfection of structure. The slightest pain or ache must be indicative of a hitch somewhere in the machinery. In this view, perhaps, none are free from disease for a day ; for few can boast of such perfect, undeviating health, as to pass four-and-twenty hours without some slight twinge of pain, without some ache or weariness to remind them that their bodies are mortal ; and from this slightest passing uneasiness, to the confirmed and fatal malady, disease passes through every gradation.

Again, it must be remembered that constitution and other causes occasion so much variation in the actions of the body, that what would be disease in one man, is health in another. For instance, one man's pulse may average sixty in a minute, another's eighty ; and it is certain that the former could not rise to the level of the latter, or the latter sink to that of the former, without disease or disorder being present. Such considerations are important in judging of the real state of a person laboring under disease ; to judge accurately of disorder, we must know

the-whereabouts of the level of health, and in this consists the great advantage of the regular medical attendant over one who is casually consulted, and who first sees the patient when suffering under illness. In popular language, the regular attendant "knows the constitution" of his patient; the other has it in many respects to learn.

Tendency to health.—Many of the most painful and deadly disorders are not more felt at their commencement than as a slight sense of discomfort, and perhaps numbness of the lesser pains felt during what is considered health, might pass on to real disease, were it not for the natural tendency to cure with which our bodies are endowed; that which is called the *vis medicatrix naturæ*—the same tendency which restores the fractured bone to soundness, and heals the wound. There can be no question that, but for this tendency towards health, this power of resisting and casting off disease, our bodies would quickly succumb to the innumerable causes of disorder to which they are hourly exposed. This power of resisting disease is without doubt much greater in some persons than others, and even in the same person at different times, often without any perceptible reason why it should be so. The power of the system in casting off disease, when forming or formed, is for the most part more plainly exercised.

When disease has established itself in the constitution, were it not for the "tendency to health," it must run on to a fatal termination; the wound would remain unhealed, the inflammation would extend, or its effects remain unrepaired, were it not for these curative powers existing in the constitution itself. If, then, whatever tends to lower the standard of health, favors the inroad of disease, so the preservation of that standard, as far as may be consistent with the safety of the patient and the reduction of his malady, ensures a more certain and speedy throwing off of the effects of the disorder, or, in one word—convalescence.

Moreover, during the progress of disease, nothing assists more the powers of the constitution, which tend towards health, and to throw off the enemy, than a cheerful and hopeful mind; as the people call it, a "good spirit;" it may make all the difference between recovery or the reverse; indeed every medical man must have met with cases of illness, in which the patient seemed as it were resolved not to give in—seemed, even under unfavorable circumstances, determined not to die, if they could help it—and did not die; even when physical powers tended to death, the mind tended to life, and the mind succeeded. Were it not for the tendency to health, or to cure, existing in the body, our medicines would be in vain, and he is the best physician who can detect those tendencies to recovery, permit them to act when they seem strong enough and assist them when they do not. The patient in the lowest stage of

fever, still has the tendency to health existing and acting within, and battling with the disease; the powers of a good constitution *may* of themselves be sufficient to conduct him over the crisis; but they may not, and unassisted, the patient must sink ere the tendency to throw off the disease gets the mastery; but the physician steps in, he gives his help to the constitution; his wine, and bark, and nourishment, and regulation of the functions, support the frame till the struggle is over, and the disease is vanquished. This power of throwing off disease, this tendency to health with which the living body is endowed, requires to be impressed upon the mind of people generally, for they are too apt to attribute that to the action of medicine, which medicine only gives its assistance to, and to despise the simpler modes of treatment, which place the natural powers in the most favorable position for curing. The vulgar attribute the healing of the wound to the plaster which merely holds it together, and consider cold water too simple to do good.

The aggravation of existing disease, both by physical influences and mental emotions, is one of the most serious enemies the physician has to contend with. The subject is sufficiently entered into in the various articles of this work.

In the treatment of disease very different methods have to be pursued; the one is that which exerts itself directly to cure by the direct action of certain medicines. Of this, the cure of ague, of neuralgia, and other periodical diseases, by quinine or iron, is an example; experience has unfolded to us, that in these and similar cases, the medicine has the power of curing by some relation established between it and the disease, by the Author of all things, and in nothing is His mercy more strikingly exemplified. But, why quinine should cure neuralgia, why opium should allay pain, we cannot tell, at least in the present state of our knowledge; the only approach to any explanation being one given by Liebig. The other method in the treatment of disease is not so much of the active as of the expectant or passive character. There are many—perhaps the majority belong to this class—forms of disease, for which we know of no *cure*, such as quinine is to ague; the throwing off the malady must be by the natural powers, and our only resource consists in putting and keeping those natural powers in as favorable a state for this purpose as possible. Of this, many forms of fever are examples; we cannot hope to cure, we can only hope to pilot the body through the rocks and untoward currents which arise in the course of the disorder, to allay secondary diseases which show themselves, to alleviate painful symptoms, and to support the constitution. These facts should be made plain to the minds of unprofessional persons generally, for the most erroneous notions prevail upon the points just

alluded to, and often lead to dissatisfaction with medical men. (See SYMPTOMS, CONVALESCENCE, HEALTH, HEREDITARY TENDENCY, ETC.)

DISEASE, GEOGRAPHICAL DISTRIBUTION OF. (See GEOGRAPHICAL DISTRIBUTION OF DISEASE.)

DISEASES AND INJURIES OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

DISEASES, FEIGNED. (See FEIGNED DISEASES.)

DISEASES OF THE BLADDER. (See BLADDER, DISEASES OF THE; URINE, ETC.)

DISEASES OF THE BRAIN. (See BRAIN, DISEASES OF THE; ETC.)

DISEASES OF THE DIGESTIVE ORGANS. (See GASTRITIS, PERITONITIS, ENTERITIS, CHOLERA, BOWEL COMPLAINTS, DYSPEPSIA, ETC.)

DISEASES OF THE EAR. (See EAR, DISEASES OF THE; ETC.)

DISEASES OF THE EYE. (See EYE, DISEASES OF THE; ETC.)

DISEASE OF THE HEART. (See HEART, DISEASES OF THE; ETC.)

DISEASES OF THE KIDNEY. (See NEPHRITIS, BRIGHT'S DISEASE, ETC.)

DISEASES OF THE LIVER. (See HEPATITIS, BILIARY DISORDERS, BILIOUSNESS, ETC.)

DISEASES OF THE LUNGS. (See PNEUMONIA, BRONCHITIS, PLEURISY, CONSUMPTION, ETC.)

DISEASES OF THE SKIN. (See SKIN, DISEASES OF THE; ETC.)

DISINFECTANTS, *dis-in-fekt'-ants*, are any agents which destroy the power or means of propagation of diseases which spread by infection or contagion. Purification of every kind, therefore, either by fresh air or by water, is disinfecting, these agents acting by dispersing or diluting the morbid germs, whatever these may be. A high temperature, doubtless, acts as a disinfectant, by destroying their chemical composition, and chlorine and muriatic acids probably exert a similar influence. Quicklime and charcoal, on the other hand, most likely owe their disinfecting properties to their power of absorbing various gases. These chemical agents are all useful, but cleanliness and ventilation are disinfectants in the power of all, and their operation is both continued and conducive to comfort. Many new agents have come into general use lately, as disinfectants, owing to the increased amount of attention which has very properly been paid to the subject.

It must be patent to the observation of every one, that it is desirable to have a disinfectant which can be of general use; one adapted for the private house as well as for the public institution. Nothing can be more important, for instance, in the case of an outbreak of fever or some other contagious disorder in a private family; for it is not always possible, nor even always desirable, that all the members of the family should remove

themselves from the source of the contagion, and abandon their relations to a trained nurse. By all means, then, let them take every precaution. Independently, too, of their real value, disinfectants, when used, give confidence to those who are needlessly afraid of infectious disease and enable them better to perform their duties. Besides being valuable as disinfectants, many of the following articles are exceedingly useful as deodorizing agents, even in cases when there may be no danger of directly infectious or contagious effect; and it should not be forgotten that all disagreeable odors and emanations from the sick, are more or less hurtful in their effects, and ought to be guarded against as much as possible by a diligent use of the means which are now so numerous and so simple of application as to be placed within the reach of all.

Amongst the most important uses also, of disinfectants, may be mentioned the advantage to be derived by those who are engaged in working amongst materials which have an offensive smell upon the hands. This is at once removed by washing the hands with the prescribed fluids, in a proper state of dilution. Perhaps one of the most suitable for this purpose is Condyl's patent disinfecting fluid, which is a solution of permanganate of potash, of a beautiful purple color. It has not the objection which many have, of being disagreeable when used with a lather of soap. Sir Wm. Burnett's fluid, which is a solution of chloride of zinc, is an admirable disinfectant, and has the advantage of being cheap. For the sick-room, rags may be dipped in it (properly diluted) and suspended on strings, at various parts of the room. Both the above named fluids may also be used in the night-chairs, water-closets, etc. It is often desirable in cases where the noxious vapors are very penetrating and persistent (as in the case of a patient dying from mortification of the lung, which is always accompanied by the most intolerable odor), to have recourse to several deodorizing agents at the same time. While the above are freely used, plates containing charcoal are to be distributed over the room; a few grains of iodine may be put on a plate and vaporized by gently heating the under surface of the plate with a lighted candle; or some chloride of lime may be placed in a bowl, and a few drops of sulphuric acid, or oil of vitriol cautiously added to it from time to time, which will cause it to give off fumes of chlorine gas, than which there is probably no more powerful disinfectant. Sir Wm. Burnett's fluid also acts by evolving chlorine, Condyl's by giving off oxygen, which it contains in great quantity, and charcoal, by the absorption of noxious materials.

Creasote and the *liquor carbonis detergens*, or concentrated solution of the active principles of coal-tar, are also useful disinfectants, though probably inferior to those above named. Solutions of chlorinated lime,

or chlorinated soda (Labarraque's fluid), are also among the very best disinfectants and deodorizers. Many others might be mentioned, as well as several powerful methods of fumigating, but they are scarcely suitable for non-professional hands. Leydoyen's fluid is a solution of nitrate of lead, but is not much used in this country. It is made by dissolving 1 pound of litharge in about 7 ounces of strong nitric acid, and 2 gallons of water. A little of the water is mixed with the litharge; the acid is gradually added, and then the rest of the water. This quantity will deodorize a moderate-sized cess-pool.

Heat is often used as a means of disinfecting clothing, and should be employed in the case of clothes used by patients suffering from scarlet fever, typhus, etc. Exposure to a heat of 212° Fahrenheit, has been found quite effectual, and it is probable that a long exposure to a moderate heat would be sufficient.

When no others can be had, dried earth, lime or soot, may be used as disinfectants, and are quite effectual in removing the unpleasant and unhealthy vapors of cess-pools, etc. Dried earth immediately destroys the odor of excrement covered by it, and prevents unwholesome emanations from it.

Carbolic acid is one of the most recent and effectual. (See article CARBOLIC ACID.)

Carbolates of lime and magnesia are also used, but their effects have not yet been much tested by experience.

Permanganate of soda is stated by Hofmann to destroy the odor of tobacco instantly when taken into the mouth.

In addition to the means recommended above for using iodine and chlorine vapors as disinfectants, nitrous acid and sulphuric acid gas may be employed. The former is probably the most powerful of all known gaseous disinfectants, and may be evolved simply enough when required, by putting a piece of copper in a jar with nitric acid in a little water. As, however, the gas is very irritating to the lungs, the rooms should be cleared before using, or it must be produced very sparingly, which can be effected by diluting the nitric acid. Sulphurous acid gas is evolved simply by burning sulphur. Vinegar is not of much, if any use, as a disinfectant. It seems almost unnecessary to say that no kind of disinfectants, or no combination of them, should ever be allowed to take the place of free ventilation. As regards their application to special diseases, Dr. Parkes seems to place most reliance upon the fumes of nitrous acid, continuously diffused, in cholera, in typhus fever, and in yellow fever; and upon fumigations of chlorine to destroy the emanations from the stools in case of dysentery. (See AIR, BROMO-CHLORALUM, BURNETT'S DISINFECTING FLUID, CARBOLIC ACID, CHLORIDE OF LIME,

CHLORINE, COAL TAR, CONDY'S DISINFECTING FLUID, CONTAGION, LABARRAQUE'S DISINFECTING FLUID, CHARCOAL, ETC.

DISLOCATIONS, *dis-lo-ka'-shunz* [Lat. *disloco*, I put out of place], are the displacement out of their natural positions of bones articulated together or forming joints. They are usually occasioned by external violence, but may also, in some cases, result from diseases of the joints. Dislocation is either complete or incomplete; being incomplete when the articular surfaces remain partially in contact, and complete when there is an entire separation. It is simple when there is no wound and the skin remains unbroken; compound when there is a wound, by means of which the external air may communicate with the joint. When, besides the dislocation, there are fractures of the bones, or laceration of important organs, then it is termed a complicated dislocation. Dislocations are named either from the joint or the bone that is chiefly displaced; and various terms are likewise employed to indicate the direction—as upward, downward, forward, backward, etc. Nearly all the bones of the human body are liable to displacement; but some are much more so than others; as those of the shoulder, hip, elbow, ankle, etc. Generally, those joints are the most liable to dislocation that admit of the greatest extent of motion. Dislocation is in most cases easily observable; but in some parts it is extremely difficult of detection. It is attended with loss of power and motion in the part, with more or less of swelling and pain, which is increased on moving the part; the patient feels sick and faint, and there is a sensation of numbness in the part. Dislocations should be reduced as soon as possible after their occurrence; for the longer it is delayed, the more difficult will be the operation.

The particular dislocations most likely to be recognized and to be remedied by unprofessional persons, are those of the small joints, such as fingers and toes; of the wrist and ankle; of the elbow, shoulder and lower jaw.

Dislocations of fingers or toes may generally be made out by most people, and should, if possible be reduced at once; the dislocated bone being grasped and forcibly pulled into place; or the clove hitch noose, made with a piece of tape, may be used. Dislocation of the thumb, it should be known, is extremely difficult of reduction, and should this not be effected *at once*, the attempt ought to be given up till the surgeon's arrival; it is moreover, one of the dislocations which may be left unreduced with less subsequent inconvenience than many others. Dislocation of the ankle is very generally accompanied with fracture, but the distortion is often so great and evident, and the suffering so severe that when the accident does occur far from proper aid, some attempt ought

to be made to put the displaced parts in better position; for this purpose, whilst one individual grasps the leg firmly, another, putting one hand on the heel and the other on the instep, should endeavor, whilst steadily pulling downward, to bring the joint into its natural position.

Dislocation of the wrist is reduced by the fore-arm being tightly grasped by one individual, the surgeon laying hold of the patient's hand in his, and endeavoring by steady traction downwards, and slight up and down movement, to bring the joint into its proper condition.

Dislocation of the elbow, if attended to quickly after the accident, may often be easily reduced by seating the person in a chair, carrying the arm well behind the back, and pulling, not very forcibly, from the sore arm. This dislocation, like the preceding, is extremely apt to be confounded with fracture of the bones close to the joint, and great caution is necessary in ascertaining the nature of the injury.

Both these dislocations—of the wrist and elbow—may be suspected, when, after violence, particularly such as is calculated to push either the hand or lower arm upwards, inability to use the limb below the seat of the injury, and distortion and impaired motion of the joint, are unaccompanied with any grating sensation, such as occurs when bone is fractured.

Dislocation of the shoulder is most generally occasioned by violence applied to the elbow, or by falls, whilst the arm is not close down to the side of the body. Sometimes the exact discrimination of an injury to the shoulder-joint is a matter of much difficulty; for fractures alone, or fractures with dislocation, may occur. At other times, particularly in thin persons, it is tolerably easy to make out, more so if the examination is made before swelling comes on. In addition to the general symptoms of dislocation already enumerated, the injured shoulder will be perceptibly altered in shape; it will appear more depressed and flatter than the sound one, and if the hand is placed on the spot which ought to be occupied with the round head of the arm-bone—and this may be discovered by examination of the uninjured shoulder—it will be found hollow; and further, if the arm be now gently moved about, and its bone traced up towards the shoulder, it will be found moving in some unusual position, most probably in the arm-pit. Supposing, therefore, that the case is sufficiently clear, and that the sufferer from the accident, in *the absence of proper surgical assistance*, is content to risk the matter upon non-professional judgment, or that from having been the subject of the accident on some previous occasion, he is tolerably certain of its present nature, the means for the reduction ought to be set about as speedily as possible, if it can be, whilst faintness from the injuries continues. These means vary considerably. Hanging over doors or gates, the arm-

pit being placed on the edge, have been employed and recommended; and in persons who have been the subjects of frequent dislocations in the same shoulder, may be efficient, but in a first dislocation should never be resorted to. One frequently-used method of reducing dislocation of the arm-bone into the arm-pit, is for both patient and surgeon to lie down upon the ground side by side, but with their heads different ways, and so that the surgeon, having previously taken off his boot, can place his heel in the arm-pit of the patient, whilst he grasps the hand, or a towel fixed to the arm of the affected side. In this way, whilst the heel is used to push against the displaced bone in the arm-pit, it, combined with the traction exerted by the surgeon upon the limb of the patient, tends to give a leverage by which the bone is so placed that it can be drawn into the socket by the muscles. This method may be a convenient one when only one person is in company with the individual to whom the accident has happened. The following is the most generally useful and most resorted to mode of reducing dislocation of the shoulder: The patient being seated on a chair, a large towel or a tablecloth, folded broad, is to be passed round the chest, close under the arm-pit of the affected side, crossed over the opposite shoulder, and held either by a strong assistant or fastened to some fixed point. By this application, the shoulder-blade is fixed; the arm itself is then to be pulled, chiefly in the direction in which it has been fixed, firmly, steadily and slowly, this being done, either directly by the hands of assistants, or by a towel fastened round the arm by the hitch-noose. If when this steady pull has been persevered in for some time, the displaced bone does not get into place, the effect of suddenly taking off the attention of the patient may be tried, either by some sudden exclamation or by dashing a little cold water in the face. By such a proceeding, the muscles which resist the reducing or pulling force applied to the arm are, for a moment, so to speak, thrown off their guard, and that moment may suffice to permit the bone to pass into its socket.

Dislocation of the lower jaw is not a very unfrequent occurrence, and happens from persons opening the mouth very wide, either in laughing or gaping; the jaw slips, and its joint portions or articulations on both sides are drawn forward; the person cannot close the jaws, but remains with the mouth wide open, a most inconvenient position should skilled assistance be far distant. The accident, however, can scarcely be mistaken, and may be rectified without much difficulty by a bystander. For this purpose, the thumb or thumbs, according to whether the joint is entirely dislocated or only on one side, are to be placed by the acting party upon the upper portions of the back teeth, and strong pressure exerted downwards, whilst the chin is drawn upwards by the fingers at

the same time. As the jaw returns to its place, its powerful muscles draw it upwards with a sudden snap; and if the fingers of the operator are not covered with a handkerchief, or some other material, they may get smartly bitten.

After dislocation of any part has occurred and been reduced, a bandage or some application which will confine the injured members should be worn for some days, not simply from fear of the accident recurring at the time, but to keep the parts, which must have been more or less lacerated, quiet, and to permit the internal traces of the injury to be as much as possible obliterated. In conclusion, although the subject of dislocation has been dwelt upon at some length, it is chiefly for the reason that these accidents, painful at the time, and, if unremedied, productive of deformity and impaired usefulness for the future, are often overlooked, or are apt to occur at great distances from skilled assistance. In such cases, the information given in the foregoing article may, either by directing attention to the importance of the injury and its speedy rectification, or, if acted upon with care and prudence, by pointing out the most effective treatment, prove a useful guide. (See ACCIDENTS, ANKLE, FRACTURES, JOINTS, BANDAGES, ETC.)

DISPENSARY, *dis-pen'-sa-re* [Lat. *dispensarium*, from *dispendo*, I distribute], denotes, properly, the shop or place in which medicines are made up and distributed, but it is now more commonly applied to a charitable institution for supplying medical advice and medicines gratuitously to the poor. These valuable institutions are only of recent origin but they are now to be met with in every city of any importance either in this country or in Europe. Attached to each are generally one or more physicians and surgeons, who, besides attending at the institution, visit at their own houses those that are too ill to attend personally. There is also a resident medical officer for dispensing the medicines.

DISPENSATORY, *dis-pen'-sa-to-re*, is a book containing the method of preparing the various kinds of medicine used in pharmacy.

DISPLACEMENT OF THE WOMB. (See WOMB.)

DISSECTION, *dis-sek'-shun* [Lat. *dis*, and *seco*, I cut], is applied to the cutting or dividing of the different parts of the body in Anatomy. (See ANATOMY.)

DISTILLATION, *dis-til-la'-shun* [Lat. *distillo*, from *dis*, and *stillo*, I drop], the process of evaporating a fluid by means of heat, and afterwards condensing it into a liquid. Its object is to separate the one substance from others with which it may be mixed; and the possibility as to whether a substance can be distilled depends upon the temperature at which it evaporates.

In chemistry, distillation is performed by means of a retort, or flask, and a receiver.

DISTILLED WATER, *dis-tild'*. When water is subjected to the process of distillation, the result is a fluid without odor or color, with an insipid taste. In this form it is called distilled water, and if evaporated to dryness, ought to leave no residue. Distilled water, in its purest possible form, is absolutely necessary to the chemist in his laboratory. Pure soft water, or rain water, is a very good substitute for the domestic preparation of medicine, etc. (See **AQUA, WATER.**)

DISTORTION. (See **DEFORMITY.**)

DISTURBED SLEEP. (See **SLEEP, DREAMING.**)

DIURETICS, *di-u-ret'-iks*. [Gr. *diouretikos*], in Medicine, those agents which have the power of augmenting the secretion of urine. Their action is beneficial whenever the system is troubled with an excess of fluids or of salts and nitrogenous substances derived from effete tissues.

There are some diuretics, such as saltpetre, which act primarily upon the urinary organs; others, as the mercurials, which act primarily on the kidneys; and others, again, which act directly on the stomach or system generally, and indirectly on the urinary organs. Stimulant and tonic medicines have generally a diuretic action in cases of debility. The action of these remedies is promoted by drinking freely of mild diluents.

As diaphoretics (which see) and diuretics are naturally opposed to each other, whatever promotes perspiration in general is opposed to the large secretion of the urine. Thus, in order to the latter, the skin should be kept cool and the patient out of bed. Diuretics are chiefly employed to restore the healthy action of the kidneys, to promote the absorption of dropsical effusions, to eliminate poisonous agents from the system, and to relieve inflammatory action. The diuretics are very various in their nature, they belong to all the three kingdoms, and are all very uncertain in their action. They include mercurials, the dilute mineral acids, and some mineral waters, digitalis, colchicum, buchu, copaiba, juniper, cantharides, broom, dandelion, parsley, cream of tartar, saltpetre, carbonate of potash, liquor potassæ, carbonate of soda, sweet spirit of nitre, squill, turpentine, spirituous liquors, beer, wine, infusion of raw coffee-berry, etc. It sometimes happens that diuretics which would not act before, act after the administration of an active purgative. Similar effects are found in the hands of medical men before and after bleeding.

Mental emotion such as fear, and nervous disorders such as hysteria, it is well known, give rise to great increase in the flow of urine.

(See the various individual articles, for the uses, etc., of the diuretics mentioned.)

DIZZINESS. (See GIDDINESS.)

DOCK. (See RUMEX.)

DOGBANE. (See APOCYNACEÆ.)

DOGS, BITES OF. (SEE BITES AND STINGS; HYDROPHOBIA.)

DOG'S GRASS. (See TRITICUM REPENS.)

DOGWOOD. (See CORNUS FLORIDA.)

DOMESTIC MEDICINES. (See HOUSEHOLD MEDICINES.)

DOMINION OF CANADA, CLIMATE OF. (See CLIMATE.)

DONOVAN'S SOLUTION. (See SOLUTION IODIDES OF ARSENIC AND MERCURY.)

DORSAL, *dor'-sqł* [Lat. *dorsalis*, from *dorsum*, the back], denotes something appertaining to the back, and in Anatomy it forms part of the name of ligaments, arteries, etc., belonging to that region. .

DORSTENIA CONTRAYERVA, *dor-ste'-ne-a kon-tra-yer'-va*, a perennial plant belonging to the Nat. order *Urticaceæ*. It is a native of the Southern States and the West India Islands. The root is the part used in medicine. It is a good aromatic tonic and has been considered anthelmintic. The infusion makes a good gargle for malignant sore throat. Dose of the powder, 20 to 40 grains; infusion, 1 to 4 fluid ounces. (See INFUSION.)

DOSE, *dose* [Gr. *dosis*, from *didomi*, I give]. Almost every article in the Materia Medica operates differently when given in a small and in a large dose. Tartar emetic, for example, in doses of from $\frac{1}{12}$ to $\frac{1}{6}$ of a grain acts as a diaphoretic and expectorant; in doses of from $\frac{1}{4}$ to $\frac{1}{2}$ of a grain, as a nauseant; and if carried to the extent of 2 or 3 grains, it proves powerfully emetic. A very similar series of effects is produced by graduated doses of ipecacuanha. The neutral salts are aperient in large doses, and diuretic in small ones. Opium is a stimulant in small and a narcotic in large doses; and the oil of turpentine, in doses of 1 to 2 grains, acts as an irritant of the kidneys and urinary organs; whilst in doses of an ounce, especially if combined with castor-oil, it operates freely on the bowels, without producing irritation of either bladder or kidneys.

These are but a few examples, but most of the medicinal substances whose operation is mild and beneficial in small doses, may be converted into powerful poisons by being administered in large quantities.

A mistake is frequently made by considering the minim and drop as identical, both being regarded as the one-sixtieth part of a dram. The following table will show how erroneous is such a conclusion:

TABLE OF THE NUMBER OF DROPS OF DIFFERENT LIQUIDS EQUIVALENT
TO A FLUID DRAM.

	<i>Drops.</i>		<i>Drops.</i>
Acetic acid.....	120	Tinctures of assafoetida, opium, digi-	
Hydrocyanic acid.....	45	talis.....	120
Muriatic acid.....	54	Tincture of iron.....	132
Nitric acid.....	84	Vinegar.....	68
Sulphuric acid.....	90	Vinegar of squill.....	78
" dilute.....	51	Water, distilled.....	45
Alcohol.....	138	Wine (Teneriffe).....	78
Arsenic (Fowler's solution).....	57	Antimonial wine.....	72
Sulphuric ether.....	150	Wine of colchicum.....	75
Oils of aniseed, cloves, cinnamon,		Wine of opium.....	78
peppermint, almonds, olives....	120	Tincture of guaiacum.....	120

The minim, as a *standard* of measurement, should be employed in preference to the drop; still, as a matter of convenience, doses are prescribed in drops, teaspoonfuls, tablespoonfuls, etc., throughout this work.

The dose of any given medicine, particularly of narcotics and purgatives, should be regulated rather in accordance with the effect it produces in each individual case than from published or written directions on the subject; they should be looked on as guides to the dose generally required rather than as applicable to every instance. It is impossible, in many instances, to lay down any positive rules as to the quantity of a certain medicine to be given. Take cancer of the womb, for example. Here opium is the sheet-anchor as a palliative; and the dose which at first will afford relief and induce sleep, soon fails to produce these effects, and the quantity requires to be increased almost daily until enormous doses are required to give the same amount of ease and sleep which were originally produced by comparatively small ones. Iodine, in scrofulous cases, is another example. The tolerance of this medicine varies much in certain individuals, without any peculiar idiosyncrasy existing with respect to it; and a dose which will act beneficially in one case will be productive of great irritation in another. The same remark applies to mercury and many other medicines.

The following is another circumstance which requires notice in regard to the regulation of the dose: A scrofulous patient, for example, comes under treatment, and iodine is administered. For a time, the patient improves rapidly, ulcers heal, glandular enlargements diminish in size, the appetite increases, and the constitution gains tone and vigor. Suddenly, however, from no apparent cause, the repairing process ceases, and the patient, perhaps, retrogrades. Under such circumstances, the dose requires either to be greatly decreased, or, what is still better, the medicine should be discontinued for a few days or weeks, when it may be resumed with the original benefit.

Wherever doses are mentioned in this work—unless otherwise specified—they are the average for an adult.

The following table is generally considered a sufficient guide in the apportionment of the doses to the different ages. For an adult, suppose the dose to be 1, or one dram :

Under 1 year	the dose will be $\frac{1}{12}$	= 5 grains....gr. v.
" 2	" $\frac{1}{8}$	= 8 grains....gr. viii.
" 3	" $\frac{1}{6}$	= 10 grains....gr. x.
" 4	" $\frac{1}{4}$	= 15 grains....gr. xv.
" 7	" $\frac{1}{3}$	= 1 scruple... ℥ i.
" 14	" $\frac{1}{2}$	= $\frac{1}{2}$ dram ʒ ss.
" 20	" $\frac{2}{3}$	= 2 scruples... ℥ ii.
" 21 to 60 years		1 dram ʒ i.

Above sixty, that is, in old age, the dose gradually diminishes.

Although the above table is, and may be, accepted as an average rule, it must not, by any means, be adopted as an invariable one in practice, without reference to the constitution, state of health, etc., of the individual. A strong child at three years of age may require, and may tolerate better, a much stronger dose than a weaker or weakly one two years older. Moreover, in the case of many aged persons, purgative medicines especially, will often require to be used as actively as in the young. Again, in such a medicine as opium, the proportions given in the table would give rather large doses for children, whilst, on the other hand, in the administration of mercurials, such as calomel or gray powder, they would reduce them too greatly. These observations are made as qualifications to what some might regard, from its being in the tabular form, as a complete guide in all cases.

As a general rule, women require smaller doses of medicine than men, and at the same time, it is always requisite to keep in view the peculiarities, periodical and otherwise, of their constitutions; and in the case of matrons, the possibility of pregnancy. It is better to avoid the use of strong purgatives, and of astringents, during the healthy menstrual period. In some cases, all relaxing remedies, such as warm bathing of the feet, and diaphoretic medicines, are inadmissible during the same event. Temperament, in all cases, requires to be considered in the administration of medicine.

Medicines used as tonics and alteratives, are usually administered three or four times a day.

For the proper preparation and administration of medicines, every family should be provided with a graduated measure, indicating teaspoonful and tablespoonful doses, and small 'druggists' weights and scales, both of which may be procured at any drugstore at a trifling cost. (See HOUSEHOLD MEDICINES, WEIGHTS AND MEASURES, ETC.)

DOUCHE BATH. (See BATHS AND BATHING.)

DOVER'S POWDER, *do'-verz*, is a compound of 1 grain of opium, 1 of ipecacuanha, and 8 grains of sulphate of potash, powdered *well* together; 10 grains consequently, contain 1 of opium. It is much used as a remedy to produce perspiration, in which, however, it often fails. It is used, also, in cases generally where opium is requisite. The ipecacuanha may occasion vomiting. From 10 to 20 grains of Dover's powder taken at the beginning of a severe cold will often promptly break it up. (See DIAPHORETICS.)

DRACHM OR DRAM. (See WEIGHTS AND MEASURES.)

DRAGON'S BLOOD. (See CALAMUS.)

DRAINAGE, *drané-aj*, is the important process by which superfluous moisture is removed from the soil, through the soil itself, or by means of channels made in or through the earth. It may be either natural or artificial; to carry off the simple excess of fluid resulting from atmospheric moisture, such as rain, or to remove the impure and deteriorated fluids, which more or less result where man and the domestic animals are congregated.

The salubrity of a district is always closely connected with its natural drainage; whenever moisture accumulates, either from position, that is, want of inclination or slope to run it off, or from the nature of the soil, disease is apt to prevail. There can be no doubt that the district where sand and gravel allow the water to drain off at once beneath the surface, and that where hard and impermeable rock permits the rain to escape readily into the nearest running stream, will be on the whole the most healthy; while, on the other hand, that in which the tough clays retain the water in ponds on the surface will be exposed to marsh fevers and various disorders affecting the throat and lungs. These remarks apply chiefly to temperate climates, but when the conditions of vegetation are taken into account, they are no less true than important for warm countries, where the rankness of the vegetation must no doubt be connected with the nature of the sub-soil over which it grows.

The drainage of houses or collections of houses, where day by day there must be removed the excretions, both solid and fluid, of man and animals, is one of the most important points connected with the preservation of health—it might almost be added, and one of the most neglected ones. Both in town and country, the necessity for sufficient drainage, whether of the natural moisture of the soil, of the results of animal life, or of domestic habits, has been, if not entirely overlooked, most insufficiently provided for.

It is generally thought that in the country less necessity exists for perfect drainage than in large towns, and to some extent the idea

may be correct in so far as the less number of individuals collected in a given spot, and the freer circulation of air, must tend to preserve greater purity of atmosphere; but the idea, by lulling suspicion, has proved a dangerous one, and the single homestead, or small isolated hamlet, has been desolated by the scourge of fever, which a little precaution might have prevented.

It is not fever, however, as generally so-called, which alone occurs in consequence of deficient drainage, but bad health generally; and whatever case of disease or accident may remain within the tainted locality, acquires a certain unfavorable tendency and type; even recovery from childbed is affected by it, and perhaps more cases of childbed fever and death than would be imagined, might be traced to the unhealthy influences originated by habitations situated in a badly-drained locality. Surely this last consideration, if no other, might rouse men to act; the point touches the wealthy citizen as well as the poor one.

Inflammation of the eye, or rather of its covering membrane, the conjunctiva, has been found occurring commonly in particular localities, no cause being assignable beyond that of stagnant and putrefying ditches or unwholesome drains. The contamination of wells which supply water used for drinking and cooking, by badly-arranged or imperfect drainage, is a very fertile source of disease; many of the worst invasions of fever and cholera also, have been traced to this disgusting source. (See HOUSES, SANITARY SCIENCE.)

DRAM. (See WEIGHTS AND MEASURES.)

DRASTICS, *dras'tiks* [Gr. *drastikos*, active, brisk, from *draco*, I effect], is a term generally applied to such medicines as are very violent in their action, particularly as purgatives; such as croton-oil, jalap, etc. (See CATHARTICS.)

DRAUGHT, *draft* [Lat. *haustus*], is a liquid form of medicine intended to be taken at once, or at a draught, whence its name.

DREAMING, *dremé-ing*, is the wakeful and sentient condition of some of the faculties of the mind, whilst the others are asleep. The whole subject of dreaming is highly interesting in a psychological point of view; but it is only in connection with the body that we have here to do with it. Some persons naturally dream more than others; but there is no question that the occurrence and more particularly the nature of dreams are both much influenced by the condition of the body. Few are so fortunate as to have escaped an attack of incubus or nightmare, arising from disordered digestion; and all who have been much with children, know well how liable they are to suffer from disturbing dreams, whenever the stomach and bowels are disordered. It may be safely asserted, that a large proportion of uncomfortable dreams are connected with disorder

of the digestive functions—generally over-loading, but sometimes the reverse. Some people always dream if they do not take some slight refreshment just before retiring to rest. Mental excitement during the previous day is of course a frequent cause of dreaming. Organic diseases, which give rise to oppression within the chest, such as diseases of the heart, are peculiarly liable to occasion uncomfortable dreams and nightmare.

Uneasy and powerful sensations excited upon any portion of the body occasion what are called suggestive dreams, that is, the sensation seems to start some thought in relation to itself from which a train of incongruities, such as occurs in dreams, appears to arise; a blister is the foundation for some dream of torture; or a loud sound for one of tumult.

Although made the subject of much credulity, dreaming, not only in its general character, but as regards the nature of the dreams, is not to be altogether disregarded with respect to the indications it affords of the bodily condition. When natural sleep is thus disturbed, particularly by dreams which cause alarm and uncomfortable sensations, or which occasion children to start and scream, the cause should be investigated; some error, simply as regards diet, either as to time, quantity, or quality, may be the reason: or disease may be forming. One or two smart purges will frequently remove the symptom. Whether in child or adult, should much mental exertion be going on, and sleep become unusually disturbed by dreaming, mental relaxation, and a greater amount of physical exercise should be combined with attention to all the functions. The shower bath, either generally or as a local application to the head alone, will be useful in such cases.

Those who are much disturbed by dreams should avoid lying upon the back as experience tells that dreaming is more frequent in that position than in any other. (See SLEEP, DIET, DYSPEPSIA, ETC.)

DRESS. (See CLOTHING.)

DRESSING, *dres'-ing*. As the treatment of and mode of dressing burns, wounds, etc., is entered into in the articles on these and similar subjects, it is unnecessary to reiterate them here, and for what is requisite respecting the application of bandages, the reader is referred to the article itself. Here it is proposed to give more the principles on which dressings should generally be conducted, than its details.

The first essential in dressing is gentleness and lightness of hand. Parts which require the process are generally in a state of greater or less inflammation, and consequently of increased sensitiveness; and the patient too, owing to the weakness which accompanies or follows disease or accident, is most probably in an irritable or nervous condition. For these

considerations, if for no other, the dressing, which is so often dreaded, should be conducted with the utmost gentle care. The next essential is to have at hand whatever is likely to be wanted—warm soft water with sponge, or in its place some soft material, scissors and lint, or linen. A piece of water-proof material, to draw under the part, is often useful. If plasters, bandages, etc., are required, they should not have to be sought for or cut when the wound is exposed and the patient waiting. If the old dressings have become in the least hard or adherent, or if plasters form part of the applications, they should all be well softened by warm water before the attempt is made to remove them; they should not require pulling away. When plasters are to be taken off a wound, the lips of which they hold together, they should be lifted at both ends so that the detaching process meets just at the wound; the object of this proceeding is to prevent the newly-healed and adhering surfaces being torn asunder, which they are more likely to be if the plaster is pulled off from end to end. For taking dressings off wounds, a pair of forceps will be found useful. When the old dressings have been removed, the parts around the wound should be gently but thoroughly cleansed. If there are any loose, mortified, or “sloughing” substances upon the wound, they may be lifted off, but its surface must not—as is too frequently done, even by medical men—be washed and swilled over with water. The matter which covers the surface of a wound is the protective covering provided for it by nature, and if this be removed, it is much more likely to become irritable and painful, and to be longer in healing. When the *proper* cleansing has been effected, the requisite dressings should be put on without delay, leaving room, if there is likely to be much formation of matter, for its due discharge, and so *placing the part* when the dressing is finished, *that the discharge can easily escape*.

The various dressings requisite for injuries will be mentioned in their proper places and articles; but one often recommended in this work requires notice here: it is the simple water dressing; which is at once the most convenient, agreeable, and universally applicable application to wounds of every kind. The popular fallacy that the applications have in all cases something to do with the healing of wounds, is very apt to make people look suspiciously on so simple an agent as pure water. It is true, the interference of art is frequently requisite either to stimulate or to repress action whilst wounds or diseases are in process of cure; but in the majority of instances, the cure is the work of the natural powers alone: all that has to be done is to place these in as favorable a position for exerting their agency as possible, and nothing answers this purpose so well as pure soft water. The application is made either by linen or lint soaked in the water—warm, tepid, or cold, as most agreeable to the sensations of the

patient, and is in most cases covered over with some material which will prevent evaporation. Oiled silk has generally been used for the purpose, and oiled calico where economy is an object, but latterly thin sheet gutta percha has been employed and answers extremely well. If linen or common lint is used, it will require at least double, to enable it to retain moisture sufficient. As a dressing, Taylor's new patent lint is a much thicker and more spongy, and for this purpose, better adapted material than the others. Water dressing is not necessarily covered with water-proof material; if the part requires keeping very cool, it is better not so; but then it will require much more frequent wetting, either by a nurse or by the system of irrigation recommended under article COLD. When water-proof material is put over the wet linen or lint, it of course prevents evaporation, and keeps in heat; *it should always be larger than the lint*. A mistake is very commonly made in this matter; a great piece of linen or lint is put on with its edges sticking out beyond the oiled silk, or whatever is used; and these edges, or even a very slight protrusion, are sufficient to drain off the entire moisture, leaving what ought to be a most soothing dressing, a dry and irritating one. (See WOUNDS, BURNS AND SCALDS, BITES AND STINGS, BRUISES AND CONTUSIONS, ULCERS AND ULCERATION, POULTICE, ETC.)

DRINKS, *drinks* [Ang.-Sax]. In order to dilute our food and repair the constant waste of fluids that is taking place in the body, a certain quantity of liquid must be taken into the system; and so necessary is this that one can bear hunger better and longer than he can do thirst. Water is, undoubtedly, the natural drink of man, and, in a perfectly healthy condition, is preferable to any other. The injurious effects of the use of impure water are manifest in the extraordinary augmentation of the liability to attacks of such zymotic diseases as may be prevalent. For the purification and preservation of water, numerous ingenious methods have been adopted; and one of the most approved is by means of patent filters, in which the water is passed through alternate layers of sand and charcoal. Where there is reason, however, to suspect much injurious contamination, the process of boiling should never be omitted; after which it may be strained and filtered, and, lastly, agitated in contact with the atmosphere, in order to restore to it its natural proportion of air. The quantity of drink required varies according to the climate, the nature of the solid food taken, and individual peculiarities. Most persons generally consume too much of liquids; and this is to be particularly guarded against during meals, as by diluting the gastric juice, it prevents the food from being properly acted upon. Perhaps the best time for taking drinks of any kind is an hour or two after meals, as is shown by the degree of thirst which is

then felt. The instinctive desire for fluid in cholera, and in diseases generally which are attended with fever, ought not to be neglected. There appears to be almost a superstitious fear with some, of allowing the sick to drink cold water, and many a sufferer regards most gratefully the unlimited permission of the medical attendant to take it freely, after it had perhaps been begged for, but withheld by mistaken friends. There are few safer prescriptions, none perhaps which may be more freely carried out by unprofessional persons, than the unrestricted allowance of simple, unstimulating drink, in all acute diseases in which thirst exists, and especially if fever be present. One dram of chlorate of potash added to 1 pint of water, makes a good drink in all cases of fevers.

A very refreshing drink may also be made by adding 2 drams of dilute phosphoric acid to 1 pint of barley water. Drinking large quantities of water is sometimes employed with beneficial effects in the cure of certain diseases. By exciting the vascular system and its connected secreting organs, it tends to remove from the blood various effete or noxious matters. On the other hand, a total abstinence from drink for two or three days is recommended as a mode of stopping fluxes and of relieving catarrhs, inflammations, and congestions. (See CATARRH, OR COMMON COLD; COLD, COOKERY, DILUENTS; STIMULANTS, ALCOHOLIC; ALE, WINE, HEAT, WATER, MINERAL WATERS.)

DROP. (See MINIM.)

DROPSY, *drop'-se* [Gr. *hudrops*, from *hudor*, water, and *ops*, aspect or appearance], is the effusion or accumulation of the serous or watery portion of the blood—such as we see thrown out in a blister—in any of the tissues or cavities of the body. Thus the watery effusion may take place in the cellular tissue, which connects the various portions of the body, and fills up their interstices, in which case it will show itself in the eyelids and other portions of the face, or swell the feet and legs, hands and arms, or the body generally. This form of dropsy is called by medical men *anasarca*. The effusion on the other hand, may be into some of the larger cavities, as into the abdomen, when it is named *ascites*; or into the cavity of the chest, between the lungs and ribs, when it is known as *hydrothorax*, or water in the chest. Again, effusion may take place into some of the smaller cavities, or rather sacs, as into the bag which surrounds the heart. Whenever it occurs, dropsy is always to be regarded seriously. It is not, as the unprofessional generally regard it, a disease in itself, but is almost invariably a symptom of disease, either constitutional or local, existing in the system.

Anasarca, or effusion into the cellular tissue, may be simply the result of general constitutional debility, of which the blood-vessels, both large and small, and the heart partake; this form of dropsical swelling usually

shows itself in the feet or ankles towards night, especially after long standing; many delicate persons are subject to it as a temporary ailment, when from cause the general health has become impaired. Local anasarca, or dropsical swelling, may arise from any cause which impedes the return of the blood through the veins; and is a very common accompaniment of disease of the liver or heart, or tumors which press upon the great veins; of this, pregnancy, which often occasions swelling of the legs during its continuance, is an example, the effect passing off as soon as the cause is removed. The lower limbs are the most frequent seat of anasarca, or as it is often called, œdematous swelling; but the hands, face, etc., are also occupied by it; indeed, swelling of the eyelids in the morning, with stiffness on first trying to open them, is often one of the first symptoms of the tendency to dropsical effusion, whatever the cause. Again, anasarca dropsical swelling may be occasioned by affection of the kidney which cannot carry off the fluid from the body with sufficient rapidity.

The above are all instances of what are called passive dropsies; the cause generally acting slowly, and unaccompanied with a marked feverish state of the system; there are, however, forms of dropsy which are attended with this feverish state, and in which the watery effusion takes place rapidly, sometimes surprisingly so. The best instance of this is the acute form of dropsy, which is apt to happen to convalescents from scarlet fever, and which is traceable to cold. Whatever occasions anasarca, or effusion of watery fluid into the cellular substance of the body generally, may also cause its occurrence in the cavities, as of the abdomen or chest; but it may also take place both in the large and small cavities, as a consequence of local inflammation. Their lining serous membrane becomes inflamed, and pours out a watery secretion in greater or less abundance. It is matter of popular information, that dropsy in the belly is apt to follow inflammation, and that water in the chest results from pleurisy.

Whatever form dropsy assumes, however, the case should at once be put under medical superintendence. As temporary palliative measures, the bowels should be kept either simply open or actively purged, according as the patient is of weak or strong habit of body; and the effusion of water may be kept in check by the use of diuretic remedies. Of these the patient may safely use the infusion of broom in doses of 2 or 3 ounces three times a day; sweet spirit of nitre, 30 drops in water, every four hours; saltpetre, 5 grains, three or four times a day; infusion of dwarf-elder, 3 or 4 ounces, three times daily. Partial relief may be found by acting upon the skin by some active diaphoretic. The following will frequently accomplish the object:

Take of Spirit of mindererus.....	Two drams.
Sweet spirit of nitre.....	One and a half drams.
Compound tincture of lavender.....	One dram.
Camphor water.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every three or four hours.

With the same object in view, the bowels may be freely acted upon by brisk purgatives :

Take of Cream of tartar.....	Half an ounce.
Powdered scammony.....	Twenty grains.— <i>Mix.</i>

Divide into 4 powders, and take 1 every morning.

When there is great debility, iron may be given with salicine.

Take of Ammonio-citrate of iron.....	One dram.
Salicine	Two scruples.
Compound spirits of ammonia.....	One dram.
Pure water	Six ounces.— <i>Mix.</i>

Take 2 tablespoonfuls three times during the day.

The diet must be liberal, consisting of meat and all kinds of delicacies. Wine may be allowed, and, in many cases, gin in small quantities benefits the sufferer, keeping up his system, and acting at the same time as a diuretic. After these remedies have received a fair trial, and found to fail, if the breathing be getting much embarrassed, and the heart's action interfered with, the patient will require to be tapped, and the surgeon's aid should be sought to let out the accumulated fluid. This operation must be resorted to only after all the other methods have failed, for the fluid will gradually accumulate again, and require another operation in a short time, because the morbid condition of the liver giving rise to the liquid effusion is beyond all cure. (See DWARF ELDER, COLCHICUM, ETC.)

DROP-WRIST, OR WRIST-DROP, *drop'-rist*, as it is often called, is an affection frequently accompanying lead poisoning, and depending upon paralysis of the muscles which extend the hand, so that it falls, or drops. Galvanism of the muscles twice a day, besides kneading, shampooing, and rubbing them with flower of sulphur, are useful as local remedies. Hot baths, with sulphur, or with the addition of a handful of sulphuret of potassium may be given every other day. These means, it is scarcely necessary to add, will be of little avail without the administration of medicines to aid in the elimination of lead from the system, and this should only be followed out under medical advice. The affection is common among painters and all tradesmen who use lead (see article LEAD) such as plumbers, workers in glass and putty powder, makers of brass taps, especially the manufacturers of sugar of lead, white and red lead, etc.

DROWNING, *drown'-ing* [Dan. *drugner*, to drown], is suffocation

produced by the immersion of the body under water, or according to some, by the exclusion of atmospheric air from the lungs by any liquid. The necessity of air to life is well known, and any exclusion of it, for even a few minutes, produces death. When a human being unable to swim, falls into the water, if it is not of great depth, he first goes to the bottom; but on account of the air in the lungs rendering the specific gravity of the body lighter than the water, he immediately rises again to the surface. The efforts made by him to maintain himself at the surface diminish the quantity of air in the lungs, and he again sinks to the bottom, but soon rises again; and this alternate rising and sinking may occur several times in succession. The air which is expelled from the lungs is seen to rise to the surface in the form of bubbles, and with every expiration the specific gravity of the body is increased; the powers of sensation and voluntary motion rapidly diminish, and the body settles at the bottom. A feeble motion may still be perceived in the chest for a short time, but that, too, ceases, and death ensues. In drowning, death is effected by the impure condition of the blood. The impure or venous blood of the system is converted into pure or arterial blood by being carried to the lungs, where it is brought into contact with the air, and its impurities carried off.

When, by any means, as in drowning, the lungs are shut out from communication with the external air, this operation cannot be carried on, impure instead of pure blood is carried through the system, the brain is immediately affected, sensation and volition rapidly diminish, and at length cease.

The period during which life may continue in submersion varies in different persons. In some instances bodies submerged but one minute have been found to be lifeless; and in many cases recovery has taken place after a submersion of eight or ten minutes. Occasionally, animation has been restored after a submersion of fifteen or twenty minutes, or even of half an hour. In general, if the body has not been in the water longer than from five to eight minutes, the prompt use of the proper means will restore animation. When the body is recovered after drowning, the skin is cold and pale, presenting sometimes patches of livid discoloration. The expression is usually placid, the eyes half-closed, the pupils dilated, the tongue swollen and pressed forward, and the lips and nostrils covered with a mucous froth. The fingers are sometimes found torn and abraded, and the hand grasping gravel or other substances, which have been seized in a convulsive struggle at the bottom of the water. Internally, the epiglottis is found to be raised; bloody foam appears in the windpipe and bronchial passages; the lungs are soft and distended; a large quantity of black fluid blood is collected in

the right, and less in the left cavity of the heart; and the vessels of the brain are swollen and filled with impure blood.

The following plan of treating a drowned person was proposed by the late Dr. Marshall Hall: 1, Treat the patient instantly, on the spot, in the open air, except in severe weather, freely exposing the face, neck, and chest, to the breeze; 2, send with all speed for medical aid and for articles of clothing, blankets, etc.; 3, place the patient gently on the face, with one arm under the forehead, so that any fluids may flow from the throat and mouth, and without loss of time. I. *To excite respiration*; 4, turn the patient on his side and (a) apply snuff or other irritant to the nostrils; (b) dash cold water on the face, previously rubbed briskly until it is warm. If there be no success, again lose no time, but, II. *To imitate respiration*; 5, replace the patient on his face (when the tongue will then fall forward, and leave the entrance into the windpipe free); then, 6, turn the body gently, but completely, on the side and a little beyond (when inspiration will occur), and then on the face, making gentle pressure along the back, when expiration will take place, alternately. These measures must be repeated deliberately, efficiently, and perseveringly, fifteen times in the minute only. Meantime, III. *To induce circulation and warmth*, continuing these measures, 7, rub the limbs *upwards* with firm pressure and with energy, using handkerchiefs, etc., for towels; 8, replace the patient's wet clothing by such other covering as can be instantly procured, each bystander supplying a coat, waistcoat, etc. "These rules," says Dr. Hall, "are founded on physiology; and whilst they comprise all that can be done immediately for the patient, exclude all apparatus of galvanism, the warm bath, etc., as useless, not to say injurious, especially the last of these, and all loss of time in removal, etc., as fatal."

Treatment after natural breathing has been restored. To promote warmth and circulation, commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, etc., by this measure the blood is assisted along the veins towards the heart. The friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, etc., to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet.

If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, 1 teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, warm brandy and water, or coffee, should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

General observations.—The above treatment as presented by Dr. Hall, should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

Appearances which generally accompany death.—Breathing and the heart's action cease entirely; the eyelids are generally half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

Cautions.—Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

On no account place the body in a warm bath, unless under medical direction, and even then it should only be employed as a momentary excitant. (See ACCIDENTS, ASPHYXIA, ETC.)

DRUG, *drug*, is the general term applied to medicinal agents used in the treatment of disease; it is, however, more generally employed with reference to the crude or commercial substances; after these have undergone preparation, they are usually called medicines.

DRUM OF THE EAR. (See EAR.)

DRUNKENNESS AND ITS TREATMENT, ETC. (See DIPSO-MANIA, DELIRIUM TREMENS, INTOXICATION; STIMULANTS, ALCOHOLIC; ETC.)

DRY AIR. (See AIR, CLIMATE, ETC.)

DRY CUPPING. (See CUPPING.)

DUCK. (See POULTRY.)

DUCT, *dukt* [Lat. *duco*, I lead or conduct], is used in Anatomy to denote the vessels which convey the different fluids in the body; as the thoracic duct, which receives the contents of the different absorbents, and discharges itself at the angle formed by the junction of the subclavian and jugular veins.

DULCAMARA. (See SOLANUM DULCAMARA.)

DUMB AGUE, *dum*, a common name for one of the forms of ague, hence the treatment is the same as presented in the article AGUE (which see).

DUMBNESS, *dum'-nes*, or inability to utter articulate sounds, may arise from absence of the tongue, or from defect in the formation of the organs of voice; probably, also, from causes affecting the nerves which supply the organs of speech; but most generally, from complete deaf-

ness, either congenital, that is dating from birth, or as the result of disease before the power of speech had been acquired and fixed in the memory. (See DEAFNESS.)

DUODENUM, *du-o-de'-num* [Lat. *duodenus*, consisting of twelve], in Anatomy is the name given to the first portion of the small intestines, and was so called by the ancients because it was supposed not to exceed the breadth of twelve fingers; but as they dissected only animals, this does not hold true in the human subject. It is from eight to nine inches in length, and commences at the pyloric end of the stomach. It first inclines upwards, backwards, and to the right, and having arrived near the neck of the gall-bladder, it bends vertically downwards, and again changes to a transverse direction; thus forming two curves or angles. It is in this intestine that chylication of the food takes place. (See DIGESTION, INTESTINES.)

DURA MATER. (See BRAIN.)

DWALE. (See ATROPA BELLADONNA.)

DWARF ELDER. (See ARALIA.)

DWELLINGS. (See HOUSES.)

DYSENTERY, *dis'-en-ter-e* [Gr. *dysenteria*, from *dus*, with difficulty, and *enteron*, intestine], or as it has been popularly called bloody flux, is a disease characterized by severe diarrhœa, fever, etc., the accompaniment of a peculiar inflammation of the mucous membrane lining the large intestines. It is frequent in tropical climates and marshy districts.

Causes.—Dysentery appears to be engendered by exposure to cold, wet, and to privations connected with food; hence it has been one of the greatest scourges of armies. The same causes and its connection with variations in climate, particularly with a hot one, must render dysentery a disease respecting which the emigrant ought to possess information; for it may happen, and it often does, that the disorder attacks those far removed from medical aid, and it is not one which brooks much delay in treatment.

Dr. Parkes says: “We may admit as both predisposing and exciting causes, according to circumstances, the following agents:

“1st. All acrid agents, whether produced by irritating ingesta, or secretions: as bad or too rich food, bad water, fruits, or retained excretions, or derangement of the biliary secretions, etc.

“2nd. Suppression of secretions rapidly accomplished: as that of the skin by cold, wet, sudden changes of temperature from hot to cold, etc.

“3rd. Epidemic states of the atmosphere, and probable alteration of the blood, either from food or its digestion.”

The power of these causes to produce dysentery should be well fixed in the minds of all those whose lot it may be to be exposed to their

influences; for by their avoidance the disease may probably be escaped; and there can be few misfortunes greater than for a new settler, whose welfare, and that perhaps of a family, depends upon his health and strength, to be attacked with dysentery.

Symptoms.—Dysentery commences either gradually or suddenly; the general commencement is, however, by diarrhœa.

“First, as to the kind of stools.

“These are, first, simply numerous, perhaps fæculent, in a few very rare instances, scybalous.—[That is, containing hard black-looking lumps about the size of beans or nuts, called by medical men scybalæ.]

‘After this the stools become numerous, slimy, gelatinous, bloody; blood in streaks, or mixed with a dark watery fluid; in another form pure, perhaps clotted. Afterwards, stools watery, muddy, like the washings of meat, or gelatinous-looking, shreddy, offensive in odor. Sometimes after this the stools present an appearance something like pus (matter), or this is mixed with mucous slime and blood, in such a way as to form a variously-colored stool, which causes great griping and tenesmus when passed.’”

Treatment.—The treatment of dysentery which may most safely be practised by an unprofessional person, in the absence of a medical man, would be, in the first instance, if they were procurable, the application of leeches to the belly, a dozen or more at once, and repeated according to the strength of the patient, if the symptoms remained unrelieved. Should leeches not be obtainable, and even if they are, a warm bath once or twice—if it did not exhaust too much—in the twenty-four hours, would be found useful; and probably the hot bran poultice to the bowels. To allay pain and relieve the disease generally, opium is the most valuable remedy; but as there may be irritating matters in the bowels, they must not be confined, which the opium alone might do, and thus, though relieving apparently for a time, aggravate the disease ultimately. To avoid this, the opium should be combined with castor-oil, or olive-oil, either simply or in emulsion with yolk of egg; 5 to 10 drops of laudanum to 1 dessertspoonful of castor-oil, repeated four or five times at intervals of four or six hours. If castor-oil is procurable, it should be trusted to; if not, Epsom salts, in teaspoonful doses, each dissolved in from $\frac{1}{2}$ a pint to 1 pint of gruel or barley water, or some other demulcent, with 4 or 5 drops of laudanum added, may be given every four or five hours. Ten grains of Dover’s powder, given once or twice in the twenty-four hours, may probably be of service, or a pill composed of $\frac{1}{2}$ a grain of opium, $1\frac{1}{2}$ grains of blue pill, and $\frac{1}{2}$ a grain of ipecacuanha, may be given every six or eight hours. The safest course, however, will be the treatment by the oily aperients and laudanum. In addition, injections,

containing from 10 to 20 drops of laudanum, will give much relief. Sometimes the lower bowel is too irritable to bear the injection, in which case, a suppository, or pill, made with a grain of opium, mixed with a little flour and water, may be passed into the bowel. The food requires much attention, and should be of the mildest character: milk, and preparations of the grains, and sago, arrowroot, etc., combined with gelatine or isinglass, will be most suitable. If the strength is much reduced, strong concentrated animal soup will perhaps be required.

Of course so serious, and it may be fatal, a disease as dysentery, should be put under medical care as soon as possible; in the meantime the above directions may be of much service.

‘The first appearance of recovery is evidenced by the stools becoming less slimy, perhaps copious and fæculent, or bran-like, or dark and slightly beaten up; or while one part of the stool is slimy, the remainder consists of natural fæculence.’ A person convalescent from dysentery, will of course require the greatest possible care in diet; and also with respect to all exposure to the causes which originated it.

CHRONIC DYSENTERY.—The acute affection now briefly described shows in some instances, a tendency to pass into the chronic disease. The latter is distinguished by the absence of all febrile symptoms, and by the long continuance of a condition of relaxation of the bowels, the discharges containing blood mixed, to a greater or less extent, with feculent matter. The belly, in such cases, is sometimes distended, at others relaxed; there is apt to be great emaciation and general feebleness; the tongue becomes red, smooth and glazed; great thirst is also a symptom. In such case, change of air often does good. Great attention must be paid to the food of the patient. Indeed the original cause of the disease is very generally a long-continued irregularity in the matter of diet. Diet, in chronic dysentery, should be nourishing, but not in any degree stimulant, consisting of farinaceous articles, and mutton or beef-tea. Milk boiled with flour, raw eggs, ripe grapes, cream and rice, are all useful articles of food in this form of disease. Such astringent remedies as logwood, in doses of from $\frac{1}{2}$ to 1 teaspoonful of the fluid extract, repeated every four or six hours, fluid extract of blackberry, or fluid extract of cranesbill, in similar doses, are the remedies indicated. Tincture of iron, in doses of 10 drops, three times a day in sweetened water, is often beneficial in completing a cure when the remedies have already begun the good work. In case a stimulant is needed, port wine is the best.

Preventive treatment.—When dysentery is prevalent, or after a person has had an attack, great care should be exercised in the matter of eating and drinking. Avoid all unwholesome and unripe fruits; eat only

those vegetables which are easily digested, and drink no impure water. Even though the weather be warm, wear flannel next to the bowels, sponging them daily with water or vinegar and water, with the chill taken off. Be very careful, if possible, to avoid exposure to damp and cold. Many a severe attack of this disease has been contracted by a severe chill from improper exposure, while insufficiently clothed, to the damp night air. (See AUTUMNAL COMPLAINTS, BILIOUS CHOLERA, DIARRHŒA, CHLORODYNE.)

DYSENTERY WEED. (See ECHINOSPERMUM VIRGINICUM.)

DYSMENORRHŒA. (See MENSTRUATION.)

DYSPEPSIA, *dis-pep'-se-a* [Gr. *dyspepsia*, from *dus*, bad, and *pepto*, I concoct or digest], is a bad or difficult digestion. It is by means of digestion that the food which is taken into the stomach is converted into nutritive matter for supplying the waste that is constantly going on in the system; hence anything that interferes with the due supply of nutritive matter materially affects the system, and may introduce a long series of ills. The complicated series of operations by which digestion is carried on, renders indigestion one of the most prevalent of the ills to which human flesh is subject—it is the prevailing malady of civilized life. (See DIGESTION.)

Causes.—Anything which tends to weaken the system, and the stomach in particular, will lead to dyspepsia, such as the use of tobacco in excess, snuff-taking, spirit-drinking, long-continued abstinence; imperfect mastication, and bolting the food, eating in a hurried manner and in too great quantity; an indolent and sedentary life, intense study; excessive labor will cause it, and it is sometimes due to disease of the liver, and at others depends upon an inflamed state of the stomach itself. Indigestion is constantly met with in the different stages of Bright's disease. Some of the retained excreta being got rid of by the mucous membrane of the stomach, give rise to constant vomiting; nothing can be kept down, and the patient soon becomes much reduced. Another very powerful cause of this disease is not allowing sufficient time to elapse between the end of one meal and the beginning of another; but before one lot of food has been thoroughly digested and passed on into the bowels, another hearty meal is partaken of, and more food is crammed down into the stomach; this organ becomes dilated, there is not sufficient gastric juice secreted to act upon so large a collection of food, and the digestive process either goes on slowly, giving rise to all kinds of morbid feelings, such as are described below, or Nature works her own cure by a circuitous route, for by setting up a reversed action in the stomach and the upper part of the small intestines, the overloaded organ is soon relieved of its burden by the act of vomiting. During the

course of pulmonary consumption dyspepsia presents itself as a very prominent symptom, and so also in most cases of diabetes, or saccharine urine, the patient suffering from enormous appetite and intense thirst.

Symptoms.—The chief symptoms of dyspepsia or indigestion are pain and sense of oppression at the pit of the stomach, increased by meals, sour eructations, irregular action of the bowels, white and furred tongue, offensive breath, capricious or no appetite, flatulence and belching, nausea and vomiting, headache and palpitation of the heart, sallow complexion and depression of spirits. The patient is languid, weak and debilitated, incapable of any bodily or mental exertion, and is very fidgety and irritable.

Treatment.—In attempting to cure this troublesome affection, depending as it does upon so many different morbid conditions, our great object is to find out its exciting cause, and if possible to relieve it. The treatment may then be divided into two parts—the dietetic and medicinal, and the strictest attention must be paid to the regimen; the patient must eat and drink sparingly, and allow four or five hours to elapse between the several meals. The diet should consist of the most digestible kind of food, and should be partly vegetable and partly animal. Mutton and poultry are very easy of digestion; but all kinds of cured meat, as ham, sausages and tongue, must be carefully avoided; the use of tobacco should be prohibited, tending to hurry the action of the heart and disarrange the digestive organs; the snuff-taker, too, should relinquish his dirty and injurious habit; all sedentary occupations must be given up, and healthy exercise sought in the pure, dry, open air of the country; walking or horseback exercise should be daily resorted to, and cheerful company must be sought to keep up the spirits. Veal has been recommended to their patients by some physicians as being very digestible, but we think it more apt to lead to this complaint than good mutton or a tender chicken. Fish is generally considered to be easy of digestion; but there is not much nutrition in it, and it is not well suited for persons troubled with dyspeptic symptoms. All kinds of slop food should be avoided, for the stomach is often unable to digest them when in a state of health, and in its present weak state they always give rise to a severe attack of this affection; so that soups, stews, hashes, and meat cooked the second time, must be shunned. Cocoa or chocolate made with milk or water, will be found very nutritious, and to agree with the patient better than tea or coffee. New bread and hot rolls must not be partaken of, and all kinds of pastry and sweets must be left for those of stronger digestive powers. If the patient indulge in any supper, it must be of the lightest character, and very small in quantity.

In the treatment of indigestion, the proper regulation of the bowels

is of the utmost importance; they should be gently relieved every day; but on no account should purging be resorted to. When aperient medicine is absolutely necessary, it may be taken in the form of a dinner pill, and the best form is 5 or 6 grains of the compound rhubarb pill, swallowed immediately before the meal, or mineral water, German bitter water, or some other aperient water may be used at night or before breakfast. Flatulence may be relieved by the use of the following aromatic stomachic:

Take of Tincture of ginger Forty drops.
 Tincture of cardamoms.....Twenty drops.
 Peppermint water.....Two ounces.—*Mix.*

Make a draught to be taken immediately.

Cayenne pepper, mustard, and other condiments of a warm character, are generally recommended to relieve this unpleasant and painful symptom. The writer has been in the habit for some time past of recommending his patients to mix as much powdered ginger as they can conveniently take with a cup of hot tea, to relieve this distension of the stomach and bowels; and in the greater proportion of cases, this homely remedy acts remarkably well. For nausea and vomiting the following may be given with good effect:

Take of Compound spirit of ammonia.....Two drams.
 Hydrocyanic acid.....Sixteen drops.
 Pure water.....Eight ounces.—*Mix.*

Give 2 tablespoonfuls every four hours.

Granulated citrate of magnesia, 1 teaspoonful every four or six hours, taken during effervescence, frequently succeeds in allaying the distressing irritability of the stomach. Should the sickness become very obstinate, a blister or mustard poultice may be placed over the pit of the stomach. Some physicians have thought that this symptom depends entirely upon a low tone of the coats of the stomach, and have given strychnine as follows, and with decided advantage:

Take of Strychnia.....Quarter of a grain.
 Dilute acetic acid.....Two drams.
 Pure water.....Eight ounces.—*Mix.*

Give 2 tablespoonfuls every four hours.

Dr. Watson thinks that vomiting is often due to morbid irritability of the stomach, and recommends hydrocyanic acid and lime water as follows:

Take of Hydrocyanic acid.....Ten drops.
 Lime water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls every four hours.

At other times solution of potash in 20 drop doses, will be found to

have a direct sedative effect on the stomach. A few drops of chloroform will often relieve it. Creasote is highly recommended, and may be taken thus :

Take of Creasote.....Six drops.
Carbonate of magnesia.....Forty-eight grains.
Mucilage of acacia sufficient to make twelve pills.—*Mix.*

Two of these may be taken three times a day.

Should the appetite become much impaired, bitter tonics combined with the mineral acids are of much service. One of the best forms is as follows :

Take of Dilute nitro-muriatic acid.....One dram.
Infusion of calumba.....Six ounces.—*Mix.*

Give 2 tablespoonfuls three times a day half an hour before eating.

When there is much debility present, the calumba, which is a very pleasant bitter, may be combined with the ammonia-citrate of iron as follows :

Take of Ammonia-citrate of iron.....Half a dram.
Compound spirits of ammonia.....Two drams.
Infusion of calumba.....Half a pint.—*Mix.*

Give 2 tablespoonfuls half an hour before each meal.

On the supposition that indigestion may often be due to absence or deficiency of some of the ingredients of the gastric juice, either the lactic, or hydrochloric acids, or the pepsine, these substances have been prescribed either alone or combined, and in many cases with very good effect. A preparation called lactopeptine, combining all the elements of the gastric juice in, as near as possible, the proportions they are found in the stomach, has lately been introduced, and in doses of 5 to 8 grains, three times daily, has certainly been productive of very much good. If the secretion of the stomach be defective, ipecacuanha may be given thus :

Take of Ipecacuanha in powder.....Twenty grains.
Extract of gentian.....One dram.
Carbonate of iron.....Two drams.—*Mix.*

Make 60 pills, of which 2 may be taken three times during the day. Five grains of the compound rhubarb pill, given morning and evening, will answer the same purpose.

Heartburn is frequently a concomitant of dyspepsia. It may be relieved by 1 teaspoonful of lemon juice, 1 wine-glassful of lime-water, or 1 teaspoonful of baking soda in 1 wine-glassful of water. (See HEART-BURN.)

Water-brash may be removed by 10 to 15 grains of subnitrate of bismuth, taken three times during the day, alone or with a few drops of oil of cajeput three times a day, or, what is often more convenient, 20

or 30 drops of essence of peppermint; 3 grains of asafœtida pill (sugar-coated) three times a day, will afford relief also. (See WATER-BRASH.)

When the spirits become much dejected and the hypochondriacal state is arrived at, great patience will be demanded in the treatment; the sufferer becomes anxious about his own welfare, and fancies that every little ache and pain will be followed soon by death; his confidence must be gained, and his disease, which is a species of insanity, prescribed for. If we treat persons of this temperament in an off-hand manner, telling them that there is nothing the matter, and hold their anxious thoughts and cares up to ridicule, they soon lose all confidence in themselves and domestic remedies, and perhaps apply to some quack, who works not only upon their mind, but upon their pocket also. The kindest treatment should be exercised in this kind of cases; the invalid should be advised to travel, to get change of air and scene, to mix in pleasant and cheerful society, and his attention must be turned, if possible, from his own fancied ailments to things more intellectual and more profitable to himself. (See MELANCHOLIA, HYPOCHONDRIASIS.)

Many of the most distressing symptoms of this disease are very much ameliorated or disappear under the use of chalybeate or slightly purgative mineral water. Vichy or Saratoga seltzer, or the celebrated German bitter water, are among the most suitable.

Preventive treatment.—This is the disease, perhaps more than any other, in which “an ounce of prevention is better than a pound of cure.” Those at all disposed to dyspeptic symptoms should take plenty of outdoor exercise. By so doing, even those who are compelled to pursue sedentary avocations may remain in perfect health to advanced years. The food should be perfectly masticated, not hurriedly swallowed in a half-chewed state, as is so often the case in this country. At least five hours should elapse between meals, as many substances take that long to digest, and one meal should not be partaken of until its predecessor is out of the way. The stomach, like every other organ, must have rest. The use of very hot or very cold articles, such as boiling hot tea, or ice water, should be avoided. Digestion takes place at a certain temperature, and if this be raised or depressed, usually the process stops. Avoid the use of tobacco and ardent spirits, if you would remain free from dyspepsia. Excessively hard labor should be avoided if possible, and to those who must earn their bread by the sweat of their brow, we would say, take a few moments’ rest before and after participating in any meal. Be always employed about something. The worst sufferers from the disease are those who have nothing to do. The vast quantity of patent medicines swallowed annually is one of the most common predisposing causes. They produce, taken

wholesale, the very conditions they are advertised to cure. Dyspepsia is very seldom prevented by the taking of medicine. When the disease has been contracted, the treatment is necessarily partly medicinal, but prevention is always hygienic. In short, eat slowly, not too often, not too much; eat simple food, neither too hot nor too cold; take rest at stated times, and always before eating; take plenty of outdoor exercise, taken after eating, it should be gentle; and under all circumstances be cheerful. The discontented grumbler is almost invariably a dyspeptic. In the article Food the reader will find a classification of the various articles of diet—for the convenience of dyspeptics—and Dr. Beaumont's table, showing the length of time required for the digestion of each article of food; also a table from Dr. Letheby's work on Food, giving a comprehensive idea of the nutritive value of different articles of diet. (See DIGESTION, FOOD, DIET, EXERCISE, HEALTH, AIR, ANIMAL HEAT, BATHS, MINERAL WATERS, SLEEP, COSTIVENESS, CATHARTICS, ACIDITY OF THE STOMACH, ATROPHY, EMACIATION, COLIC, BILIARY DISORDERS, BILIOUSNESS, FLATULENCE.)

DYSPHAGIA, *dis-fa'-je-a*, difficulty in swallowing.

DYSPHONIA CLERICORUM, OR CLERGYMAN'S SORE THROAT. (See CLERGYMAN'S SORE THROAT.)

DYSPNŒA, *disp-ne'-a* [Gr. *dus*, with difficulty, and *pneo*, I breathe], is an embarrassed or laborious breathing. It is owing to a disturbance of the natural and healthy relation that ought to subsist between the blood and air in the lungs.

DYSURIA, *dis-u'-re-a*, difficulty in passing water. (See BLADDER, DISEASES OF THE; URINE.)

E.

EAR, *eer* [Ang.-Sax.], the organ of hearing consists of three parts—the external ear, the middle ear or tympanum, and the internal ear or labyrinth. The external ear consists of an expanded trumpet-shaped cartilaginous structure, called the pinna, or auricle, which collects the sounds, and a tube which conveys these sounds to the internal ear. The pinna or auricle consists of an uneven piece of yellow cartilage, covered with integument and fixed to the margin of the auditory canal. This canal, the *meatus auditorius externus*, or tube by which sound is conveyed from the pinna to the internal ear, or tympanum, is about $1\frac{1}{4}$ inches in length, and is formed partly by cartilage and membrane. The *middle ear*, tympanum, or drum of the ear, is an irregular cavity situated

within the petrous bone, and interposed between the *meatus auditorius* and the labyrinth or inner ear. It is filled with air and communicates with the pharynx by the eustachian tube. It is traversed by a chain of small movable bones, which connect the *membrana tympani* with the labyrinth, and serve to convey the vibrations communicated to the *membrana tympani* across the cavity of the tympanum to the internal ear. The inner and fundamental portion of the organ of hearing is called from its complexity, the labyrinth, and consists of three parts—the vestibule, the semicircular canals and the cochlea. The vestibule is the common central cavity of the osseous labyrinth, and is placed behind the cochlea, but in front of the semicircular canals. These are three bony canals situated above and behind the vestibule, measuring about one-twentieth of an inch in diameter, and opening at both ends into the vestibule. The cochlea, so called from its resemblance to a snail's shell, is conical in form, and placed almost horizontally in front of the vestibule. Its length is about a quarter of an inch, and its width at the base about the same. It consists of an axis or centre; of a canal winding spirally round it for two turns and a half from the base to the apex; and of a delicate lamina contained within the canal, which follows its windings, and subdivides it into passages. The auditory nerve, which is distributed over the different parts of the labyrinth, enters by the *meatus auditorius internus* and divides into two branches—viz., an anterior for the cochlea and a posterior for the membranous labyrinth. (See EAR, DISEASES OF THE; CERUMEN, DEAFNESS.)

EARACHE. (See EAR, DISEASES OF THE).

EAR, DISEASES OF THE, the disorders to which the organ of hearing is most liable, are loss of function, or deafness, noises in the ear, neuralgia, or affection of its nerves, abscess within the meatus, or in the cavity of the tympanum, chronic discharges, polypus; and further, the meatus in children is very apt to be chosen as the receptacle for peas, small buttons, or indeed anything they can poke in easily, but which are often extremely difficult to get out again, and usually require the aid of the surgeon.

The subject of deafness has been already treated of, but the attention of the reader is again called to the many causes which may produce the one effect. The malformation at birth of the inner ear, as a cause of complete deafness, is also connected with dumbness: or accident may at any time of life injure the delicate structures contained within the cover of bone. The passage of the air through the external ear-passage may be obstructed or prevented by an accumulation of wax or other matters; the membrane of the drum may be perforated; the bones may have been discharged by disease; or the eustachian tube blocked by swelling

temporarily, or permanently by thickened mucus. There are no diseases, perhaps, which require—as must be evident to all—more tact in their discovery and in their treatment, than those of the ear, and yet, till lately, they have been almost entirely left in the hands of ignorant assumers, and the name of aurist has almost been synonymous with quack. The anomaly is now passing away, and the labors of the talented and scientific are placing the knowledge and treatment of these disorders upon a more rational and scientific basis.

We would caution our readers to avoid *quacks*, and especially *traveling impostors*, who assume the name of “aurist.” In cases of threatened deafness, or any serious trouble in the ears, no time should be lost in consulting the family physician, who, if he cannot grant relief, will refer his patient to a medical man who has given special attention to aural surgery.

Noises in the ears, such as singings, ringing of bells, roaring as of the sea, etc., are often extremely troublesome, and may arise from many and different causes. Mere temporary derangement of the digestive organs will in some persons produce them; they are often indicative of determination of blood to the head, and, when accompanied with symptoms of this tendency, ought not to be neglected. Partial obstruction of the eustachian tube by cold, or accumulation of wax in the external ear-passage, is apt to occasion these noises, and they are accompanied with some degree of deafness. Of course the remedy must vary with the cause; if the digestive organs are deranged they must be regulated; if cold be the cause, the symptoms may be left to pass away with the temporary ailment. In some cases of chronic, or continued noise in the ears, regularly bathing the head with cold water every morning will, after a time, remove it. For further advice regarding *the accumulation of wax in the ear*, the reader is referred to the subjects CERUMEN and DEAFNESS.

Eurache, or otalgia, is a neuralgic affection of the ear, characterized by fits of violent pain, generally coming and going capriciously, and without fever. It is distinguished from *otitis*, or inflammation of the ear, by the pain being of a shooting and not of a throbbing nature, and by its coming on or departing suddenly, or reaching at once its maximum of intensity. The causes of earache are the same as those of neuralgic affections generally, and it requires a like mode of treatment. (See NEURALGIA.) It frequently arises from toothache, and may likewise be occasioned by foreign bodies in the ear. Gentle rubbing with the chloroform liniment in the immediate neighborhood of the pained part; or warm poultices, especially the chamomile poultice; or a soft warm poultice made of white bread, over the whole ear; or a fomentation of

chamomile and poppies will generally afford relief. (See FOMENTATION.) Immediate relief is often afforded by warming some laudanum—which is most conveniently done by placing the bottle in a vessel containing warm water—and filling the ear with the warm laudanum, which is retained by inserting a plug of cotton-wool. This is free from danger or injurious effects. Laudanum or paregoric taken internally, will often prove useful in aiding the treatment. (See LAUDANUM, PAREGORIC.)

M. Duval says that he has, in person, found relief in severe earache, after other means had been tried in vain, from the use of a mixture of equal parts of chloroform and laudanum, a little being introduced on a piece of cotton-wool. Chloric ether, used in the same manner, will often afford relief. A mixture of equal parts of laudanum and sweet oil, introduced into the ear, in the same way, will also often relieve the pain. The heart of a roasted onion applied warm to the external orifice, will sometimes be sufficient treatment. The constitutional treatment consists of a smart purgative to be followed by tonics, as quinine and iron. (See QUININE, IRON.)

In children, during dentition, lancing the swollen gums will often give relief, especially if an aperient be given, such as rhubarb and magnesia, combined with a little ginger, as in Gregory's powder (which see).

Inflammation of the ear, or otitis, is often called *earache*. It is one of the most painful disorders, and is generally the result of cold. It is characterized by intense throbbing pain in the ear, with, frequently, perceptible swelling externally, and more or less fever. There is no relief to pain till the abscess bursts, and this result is to be encouraged by the assiduous use of fomentations, poultices, etc. After the matter has discharged, the ear ought to be gently syringed out three or four times a day with warm water, till the discharge ceases. It will be advisable to give a few doses of aperient medicine during the progress of the case.

The abscess may form within the tympanum, and the membrane be perforated in giving exit to the matter. Inflammation of the ear ending in abscess differs from true earache, or neuralgia, in the pain being comparatively slight at first, and gradually increasing in intensity as the disease progresses; whereas in neuralgia it commences with full severity.

When the discharge after an abscess does not disappear, or when running from the ears shows itself after acute diseases, such as measles, scarlet fever, etc., the symptom must not be neglected, and should be examined into by a medical man.

Bodies of various kinds are apt to be thrust into the external ear-passage by children, or to find their way there by accident; and farm laborers sometimes get grain, peas, etc., projected in during threshing.

If the introduced body is much smaller than the passage, its removal may be attempted by syringing freely, and with a strong syringe; but if the body fills up the meatus, or nearly so, this will not succeed; and in the event of its being a pea, or anything that will absorb fluid, and swell, will do mischief. Neither, in case of a large body, which the syringe will not disengage, is it well for friends to attempt the removal in any other way; they never do any good, and only push the obstruction further in, rendering its extraction by the surgeon more difficult, particularly if it has passed beyond the middle and narrowest portion of the canal.

In purulent discharge from the ear, which is induced by any cause, a lotion made with 2 drams of solution of chlorinated soda to 6 ounces of rose, or elder-flower water, should be injected, but not with any force; the best method is to let it flow into the ear, held so as to receive it fairly, from a small sponge saturated with the lotion.

Counter-irritation will sometimes have a good effect on purulent discharges from scrofula or other causes; a small blister behind the ear is the best application, but it should not be kept open for any length of time, or it will weaken the system too much. When the discharge is the result of active inflammation, and is attended by febrile symptoms, a spare diet and aperients must be the treatment; but weakly scrofulous systems require a generous diet and tonic medicines. (See SCROFULA.)

Polypus of the ear is by no means an uncommon form of the fungoid growth which sometimes occurs in several of the internal tissues. It is of a jelly-like consistence, and a whitish-yellow color, and is attached to the membranous lining of the ear; there are also granulations of fungus which sometimes shoot up from the membrane, and are distinguished by their reddish hue from polypi; these may generally be removed by the surgeon, by being held firmly with a pair of forceps and then gently twisted and pulled at the same time; this should only be done by a properly qualified person, as much mischief may result from the unskilful application of the forceps to so delicate a part; sometimes when the polypus is in the external passage, and not far up, it may be destroyed by astringent applications, such as the muriatic tincture of iron or burnt alum, applied with a camel's hair brush. (See EAR, CERUMEN, DEAFNESS, EAR SYRINGE.)

EAR, FOREIGN BODIES IN. (See EAR, DISEASES OF THE).

EARLY RISING, *er'-le rize'-ing*. There can be no question, as a general rule, that the habit of early rising is conducive to health; but, like many other similar matters, the general application would, by many, be converted into a universal law, and much fallacy and no little mischief has been done by the propagation of the dogma.

It is generally said that all those who have attained great and green old age have been early risers; therefore, say others, early rising is a promoter of health; therefore, it might be whispered, those whose constitutions have carried them through a long life have been able to be early risers. As in many other things, the truth probably lies between the two, there have been good vital powers on the one hand, and good habits, of which early rising is often an indication, on the other. The wrong deduction, however, that early rising is an unmingled good, has occasioned much erroneous practice, and many delicate persons, either in consequence of the false idea, or badly advised by others, have injured their health, materially, by perseverance in the practice; this, however, is more common among the young than among the aged, who require less sleep.

There is no question, but that the bodily powers and constitution undergo marked and regular changes during the twenty-four hours, changes which are probably influenced by electrical and other causes not at present understood. At all events, in diseases, evening brings fever if it is present at all, and towards morning, excitement abates if it does so at all; further, in health, the body, it is well known, is more obnoxious to the causes of disease in early morning than it is at other times; and lastly, persons of weak nervous power generally feel better towards evening than they do in the morning, even when the refreshment of a night's rest might be expected to have given strength. The reason of these differences it is perhaps not possible fully to explain, but we may reasonably conclude that the same influence which causes or aggravates the evening fever, and abstracts excitement towards morning, may also act as the elevator or depressor of the constitution generally, although only felt when it is not in full vigor; it may, or it may not, be owing to the presence or absence of solar influence, but still it is so, and the fact is one of general experience. The fact, too, explains why early rising is not only not good for all persons, but why to some it is positively hurtful, and why those who are able to practice it, are generally of strong and good constitution. Moreover, the fact tells that the person who cannot rise early with full impunity is not in full vigor, but requires means for attaining a better state of health; when the powers of life are raised to the proper level, then, by all means, let them be kept to it, and early rising used as one of the preservative means.

What is meant by early rising is getting up from rest before the sun has exerted some power upon the earth; the exact period to suit the invalid it is impossible to specify, it ought to be matter of experience. That is to say, retiring to rest at a reasonable, early hour, such as ten o'clock,

the person should rise as early as can be done without feelings of sleepiness, languor, etc., supervening during the day. There are certainly evils consequent upon continuance in bed in the morning, such as perspiration, etc., but they may be greatly obviated by the non-use of feather beds, or too much clothing; they are less, however, than those which result from a nervous system exhausted, at a period of the day before it had come into full activity. The same arguments which apply to early rising also do so to exertions, or continuance without food by weak individuals in the first part of the morning; they can practice neither with impunity. There is no time of the day so pleasant, and the hale and strong can enjoy it to perfection, and gather health in its fresh breezes, and their description will often tempt the unwary invalid to leave his couch and follow the example, and he really does enjoy, for a short time, the novelty; but shortly, languor creeps over him; the breakfast which disappears before the appetite of the strong morning walker has no charms for his exhausted weaker companion, who pays with a day of listless languor for this ill-advised attempt. These hints will, it is trusted, not be taken as an encouragement to laziness, but as pointing out a very common error in popular belief and popular practice.

It may be said, as a general rule, that for a healthy adult eight hours' sleep—equivalent to one-third of human life—are required. (See BED, SLEEP, BREAKFAST.)

EAR SYRINGE, *eer sir'-inj*. This instrument is made of different materials. In using it, great care must be taken not to thrust the point in too far. Some ear syringes are so constructed as to prevent this, and these should always be selected, especially for domestic use. The liquid should be thrown in quite gently, and if it causes great pain, should be stopped for a time; a towel or basin should be held under the ear while the syringe is being used. (See EAR; EAR, DISEASES OF THE.)

EARTH-CLOSET, *erth'-kloz-et*. A closet, so arranged, that the evacuations from the bowels, as soon as they are dejected, are immediately covered with a layer of dry earth, thereby effectually destroying all odor, and rendering their presence in the sick chamber, for a reasonable time, perfectly innocuous. The contents may be removed at any time without creating any stench whatever. Any ordinary carpenter can easily construct one, and no invalid-room should be without one.

EAR-WAX. (See CERUMEN, DEAFNESS.)

EATING. (See BREAKFAST, LUNCHEON, DINNER, SUPPER, MEALS, DIET, FOOD, DIGESTION, DYSPEPSIA.)

EAU DE COLOGNE, *o'-de-ko-lone'*, a perfumed spirit of lavender.

ECBALIUM OFFICINARUM. (See MOMARDICA.)

ECHINOSPERMUM VIRGINICUM, *ek'i'-no-sper'-mum vir-jin'-e-kum*, or hound's tongue. An annual plant belonging to the Nat. order *Boraginaceæ*, and commonly known as dysentery weed. It is found growing on rocky ground throughout the United States. The root is the part used in medicine; it is mucilaginous and astringent, and has proved very useful in dysentery and diarrhœa. Dose: of the powder, 10 to 20 grains; of the infusion, 2 to 4 fluid ounces, three times a day. (See INFUSION.)

ECTHYMA, *ek'-the-ma*, a disease of the skin in which pimple-like pustules containing matter are developed. (See SKIN, DISEASES OF THE.)

ECZEMA, *ek'-ze-ma* [Gr. *ekzeo*, I boil out], is a disease characterized by an eruption of small vesicles on various parts of the skin, crowded closely together and often running into each other. These often burst, discharging a thin acrimonious fluid, leaving the surface very tender and painful. It is not contagious, and generally passes away after a week or ten days. There are several varieties, the most important being the *E. rubrum* proceeding from mercurial irritation. It is to be treated by warm bathing and fomenting with decoction of poppies, together with mild aperients and diaphoretics, and afterwards with cinchona bark. Some recommend the application of glycerine to the parts, or a lotion composed of water and glycerine in equal portions. Cod-liver oil will also be of service.

EDUCATION, *ed-u-ka'-shun* [from Lat. *educo*, *educatus*, to lead forth], as applied to man, means literally the bringing forward, or encouraging and regulating the qualities or properties of which his whole being is capable. The natural division of the process is into mental and physical; the education of the mind and of the body.

So much that is applicable to the subject of physical education is said in the article CHILDREN, and also in the various articles on AIR, CLOTHING, FOOD, EXERCISE, HEALTH, etc., that it leaves but little to be added here, and to the above-mentioned articles, and to those bearing upon sanitary measures generally, the reader is referred for information.

The great difference between the physical education of the male and female sex, commences when children leave the nursery. The boy, much less hampered by the mode of clothing, and permitted much more freedom in physical exertion than the girl, has, as far as these are concerned, a better chance of attaining his full measure of health, provided the mind be not overworked, and the constitution and surrounding circumstances are not absolutely deficient or adverse. The girl, on the other hand, is submitted to many artificial restraints and modes of education which militate strongly against the chance of her making a

perfectly healthy woman. The diffusion of a knowledge of these principles on which health depends has, of late years, tended to ameliorate many of the most injurious practices connected with the bringing up of girls, but many yet require to be corrected.

The bad results which are often brought about by the use of stays or corsets, have been so often exposed and condemned, that the subject has become almost hackneyed, and yet by a majority of the female sex the practice is still followed to an injurious extent. It seems as if people imagined that the Creator had made the body of the adult female so weak that it cannot support its own weight; for either on this account, or without reason, they ease it up in artificial supports. Even among the poorest the abuse extends, and girls of ten or twelve are kept from bending naturally by the use of corsets. True, these articles of dress do at last become indispensable, but it is only after the muscles of the frame have been weakened, in consequence of not being permitted to exert their appointed and regular action. Any muscle or set of muscles of the body, if not regularly exercised, become diminished both in substance and power; the human framework or skeleton is so constructed, that the muscles with which it is furnished, and particularly those connected with the spine, preserve its equilibrium; supersede these muscles by artificial support, and they become weakened; but as their artificial substitutes cannot act with the perfection of the natural supporters, the defect sooner or later shows itself; the unsupported spine gives way somewhere, and curvature, more or less, ensues. It would astonish most persons, were they made aware of how many curved spines there are, in how many, who even do not themselves suspect it, the deviation exists, and how often it is the occasion of impaired health, palpitation of the heart, hysterical and other affections. Moreover, the above spinal weakness is not the only evil consequence, for it is too often mixed up with disorders of the digestive and circulatory organs, originated by their compression by the clothing. The too prolonged hours of study inflicted upon girls are unquestionably a great evil, but they would be less so, were the hours of relaxation and exercise more rationally conducted. No exercise can be beneficial unless the mind be actively interested, or at least pleasantly occupied during the time of exertion; but little good can result from demure walks, taken without interest, and almost without enjoyment. (See CHEST.)

EDUCATIONAL INSTITUTIONS. (See SCHOOL.)

EEL, *eel*, is one of the oily fishes, and is peculiarly indigestible.

EFFERVESCENCE, OR EFFERVESCING DRAUGHTS, *efferves'-sense*, is the rapid extrication of gas or vapor from a liquid, hence boiling is effervescence: medically, however, the term is generally applied

to the extrication of carbonic acid gas solely. Many mineral waters such as Seltzer water, are effervescing, from containing the gas naturally; soda water and other effervescing drinks are impregnated with it by mechanical means, whilst in fermented liquors it is generated in the process of fermentation. In the practice of medicine, effervescing draughts are most frequently, perhaps, formed by the direct separation of the gas from one of the alkaline carbonates, such as the carbonate or bicarbonate—which latter contains the gas in greatest abundance—of potash, soda, or ammonia; the solution of bicarbonate of magnesia, or fluid magnesia, is also used for the purpose. In many forms of illness, particularly those attended with thirst, no kind of medicine is so grateful to the patient, or so readily taken, as that which is given in a state of effervescence; if the stomach is irritable, and a tendency to vomiting present, medicines given in this way are more likely to be retained, the carbonic acid apparently exerting a quieting and soothing effect upon the organ; at the same time, the taste of medicine is considerably obscured by its administration by this method. When the tongue is much furred, and particularly in cases of sore throat, when medicine in any effervescing form can be swallowed, none appears to exert a more cleansing effect, in removing thick mucus and incrustations, and if it does this for the mucous membrane of the mouth, it must probably have the same effect on that of the stomach.

Some persons who are liable to suffer from difficulty of breathing, whether from asthmatic or other causes, and those who do not easily get rid of flatulence, cannot take effervescing drinks without inconvenience; this, too, occurs if patients to whom they are administered are confined to bed, and lie down too soon after taking the dose. A minute or two ought always to be allowed for the eructation of the gas, before a patient who has taken an effervescing draught resumes a recumbent position.

One of the alkaline carbonates above mentioned being made the effervescing agent, many medicines may of course be given in combination. The acids most generally and beneficially used to combine with the alkali, and set free the gas, are lemon-juice, citric acid, and tartaric acid; they ought to be used in the following proportions: To 30 grains of bicarbonate of potash, a small tablespoonful of lemon juice, or 20 grains of either tartaric or citric acids. To 30 grains of bicarbonate of soda, about one-fifth more of the above acids. To 6 grains of carbonate of ammonia, 2 teaspoonfuls of lemon juice, or about 8 grains of either citric or tartaric acids.

So common has the use of effervescing draughts become, that the materials, soda and tartaric acid, and a measure for the purpose, are kept in many houses. The practice is not free from danger or injury;

the continued use of soda being apt to impoverish the blood. To the weakly it is of course more likely to prove hurtful than to the strong.

The mode of mixing effervescing draughts which is commonly recommended, is a bad one. The two powders are generally ordered to be quite dissolved in separate portions of water before mixing; the consequence is, the gas is extricated all at once; the violence of the effervescence—unless the glass is a very large one—is very liable to carry up and spill over a portion of the liquid, and the action subsides before the person can drink. All this may be avoided if the acid and alkali, in *fine* powder, are put dry in the glass, and the water poured slowly upon them from some little height. In this way the gas is more slowly extricated; there is no spilling, and, if properly done, full solution of the powders ought to be effected. If lemon-juice is used, it should be mixed with the water, and poured upon the alkali in the same way. Of course when the draught is a very small medicinal one, the same precautions are not required. The use of effervescing forms of medicine has of late years become much more prevalent than formerly, and as a consequence we find many improvements introduced, by which various drugs are rendered not only more palatable if taken in the above state, but also more likely to sit easily upon the stomach. Thus, we have effervescing magnesia, iron, quinine, lithia, bismuth, etc. The process of granulating is now applied to many medicines, and consequently, we have such medicines as the granulated effervescing citrate of magnesia, and others, which are found so convenient and so comparatively agreeable. (See AMMONIA, CARBONIC ACID, CITRATE OF MAGNESIA, POTASH, SODA.)

EFFLUVIUM, *ef-flu-ve-um* [Lat.] is a gaseous emanation or exhalation, from any body, generally of an offensive or noxious character. Effluvia is the plural. (See CONTAGION, DISINFECTANTS).

EFFUSION, *ef-fu-zhun* [Lat. *effusio*, from *effundo*, I pour out or forth] in Medicine is applied to the escape of any fluid out of a vessel or viscus naturally containing it, and its lodgement in another cavity, in the cellular substance, or in the substance of parts. It also sometimes signifies an oozing or morbid secretion of a fluid from vessels that have not been ruptured; thus surgeons often speak of coagulable lymph being effused on different surfaces.

EGG-NOG. (See COOKERY FOR THE SICK).

EGGS, *egz*. Ovum [Latin for egg], is a body produced by the females of birds and certain other animals, containing an embryo of the same species. The eggs of the common domestic fowl are a favorite article of food, and are nutritious and easy of digestion when lightly cooked. Beat up in a cup of tea, coffee, or chocolate, or a glass of

wine, it is well adapted to invalids with weak digestion. The white of egg, from the quantity of albumen which it contains, is one of the best antidotes in poisoning by corrosive sublimate, the salts of copper or zinc. The yelk is used in making emulsions, etc. The shell, being composed chiefly of carbonate and phosphate of lime, may be used, finely powdered, as a substitute for chalk or lime, in poisoning by mineral acids, when these are not to be had.

In the preparation of medicines of an oily character, the yelk of egg is often advantageously employed, forming with them an emulsion which is mixable with distilled or rain water. Castor-oil and turpentine are both advantageously given by this method.

Heat first coagulates and then hardens albumen, thus impairing its digestibility; a reason for avoiding over-cooked eggs, as well as meats. The egg should be boiled just sufficient to set the albumen or white, but not to make it hard.

In an address lately read by M. Genin before the Academie des Sciences, he affirms that the sex of eggs may be accurately determined; all eggs having the germs of males have wrinkles on the smaller end, while the female eggs are smooth at both extremities. (See FOOD, EMULSION.)

ELASTICITY, *e-last-tis'-ete*, is the power possessed by various bodies of returning quickly to the form from which they have been forcibly altered. India-rubber, both in its natural and in its vulcanized condition, presents one of the most familiar and best examples. The elastic properties of this most useful product of nature, have been abundantly taken advantage of in the formation of appliances of various kinds for the treatment of disease, and for the relief of suffering. The elastic bandages, cushions, stockings, and supporters of various kinds, are among the most valuable additions to the modern practice of medicine; and with them may be classed elastic pads, which, whilst they exert a sufficient amount of pressure, yield, when, from counter pressure such as that caused by swelling of the part to which they are applied, inelastic hardness would prove injurious. (See CAOUTCHOUC.)

ELASTIC PADS, BANDAGES, CUSHIONS, ETC. (See ELASTICITY.)

ELATERIUM. (See MOMARDICA.)

ELBOW, *el'-bo* [Sax. *elneboga*], is the joint of the arm formed by the lower end of the humerus and the upper end of the radius and ulna. The lower end of the humerus is received into the hollow of the ulna, so as to produce a hinge-like arrangement, and the upper end of the radius forms also a small part of the joint. The surface of the humerus in contact with the ulna is limited, internally and externally, by a

prominent ridge, and is hollowed out in the centre; that in contact with the radius is a small rounded eminence which moves in the cavity of the latter. On front of the humerus, above the articular surface, are two depressions that receive the coronoid process and the head of the radius during flexure; and behind is a large fossa for the reception of the olecranon, or large process of the ulna, in the extension of the fore-arm. Where the bones touch, their surfaces are covered with cartilage, and their articular ends are kept in place by a number of ligaments. (See DISLOCATIONS.)

ELBOW, DISLOCATIONS OF. (See DISLOCATIONS.)

ELDER. (See *SAMBUCUS CANADENSIS*.)

ELDER, DWARF. (See *ARALIA*.)

ELECAMPANE. (See *INULA HELENIUM*.)

ELECTRICITY, *e-lek-tris'-e-te* [Gr. *elektron*, amber]. This agent is used as a remedial power in three principal forms, closely allied to each other, and yet differing somewhat in their special uses and action. They all act as stimulants to the nervous system, and unlike other remedies of the class, the stimulation they produce is not followed by subsequent depression.

1. COMMON OR FRICTIONAL ELECTRICITY. This may be obtained for medical purposes from the ordinary electrical machine, in which it is produced by the friction of a glass plate or cylinder on a rubber. A common mode of using it is as follows: The patient is placed upon an insulating stool and made to take hold of the prime conductor of the electrical machine. Sparks are then drawn from the body, either by the hand of the operator or by metallic conductors. In some constitutions there is a peculiar susceptibility to its action, and as there are no means of distinguishing beforehand those with whom it disagrees, it is always advisable to use it in the first instance cautiously, commencing with slight shocks. It is, as a rule, a purely chronic remedy, applicable only to chronic diseases, and required to be used for several weeks in succession. It should be used with caution in inflammatory states of the body, and in pregnancy a miscarriage might be produced.

In paralysis and paralytic affections generally, electricity, if employed with due care, proves highly serviceable. In lead palsy, or drop-wrist, it is especially beneficial. In aphonia, or loss of speech from sudden fright, cases of twelve years' standing have been cured. Its emmenagogue properties are certainly very powerful, and many cases of amenorrhœa have been cured by its use. In epilepsy the results are not so satisfactory. Constipation, depending upon paralysis of the muscular fibres of the intestines, has frequently yielded to the use of this wonderful agent.

2. FARADIZATION, ELECTRO-MAGNETISM AND MAGNETO-ELECTRICITY.—This is the second form in which electricity is used in therapeutics. In the magneto-electric machine the fluid is generated by turning a crank, while in the electro-magnetic machines it is generated by the chemical action of two plates of metal immersed in an acid solution. Faradization, so named after Prof. Faraday, has proved very useful in chronic rheumatism and rheumatic paralysis. In neuralgia, the result of accident; in recent cases of dropsy of the scrotum or hydrocele; in indolent ulcers and wounds. In a case of suppression of the milk, by passing it in various directions through the breast by means of moistened sponges applied to the ends of the wires, its effect was almost instantaneous.

3. VOLTAIC ELECTRICITY OR GALVANISM.—In mercurial and lead palsy, galvanism has proved highly serviceable; paralysis and catarrh of the bladder, and also incontinence of urine in children have been materially benefited by its use. Several cases of impotence cured by its use are also on record. In spasmodic asthma, by transmitting the current from the nape of the neck to the pit of the stomach, almost immediate relief followed. Several cases of indigestion have been helped in the same way.

In poisoning by opium, chloroform, etc.; in drowning and other forms of asphyxia, galvanism is a most valuable means of stimulating the patient and restoring respiration and circulation.

ELECTRO-MAGNETISM. (See ELECTRICITY.)

ELECTUARY, *e-lek'-tu-q-re* [Lat. *eligo*, I make choice], in Medicine is a form of preparing certain remedies, such as dry powders, by forming them into a soft mass by means of a syrup or honey, so as to be easily taken off a teaspoon or the point of a knife without their naturally unpleasant taste being perceived.

ELEMI, *el'-e-me*. A concrete, resinous exudation, the source of which is not exactly known, but is generally believed to be from the *Canarium commune*. It is of a yellowish-white color, with a fennel-like odor, soft, unctuous and adhesive, and about the consistence of thick honey, but becoming harder and more resinous by age. It is chiefly imported from Manilla. It is used as a stimulant in the form of ointment. The ointment of elemi is composed of $\frac{1}{4}$ ounce of elemi and 1 ounce of simple ointment.

ELEPHANTIASIS, OR BARBADOES LEG, *el-e-fan-ti'-a-sis* [Gr. from *elephas*, an elephant], is the name of a disease common in the East and West Indies, and so called from the skin of the afflicted limb becoming rough, scaly, and enormously thickened, so as to resemble the leg of an elephant. It generally comes on with great heat of the skin, alternating with profuse perspiration and ardent thirst. The part

becomes red, hot, swollen, and painful, increases to great size, and becomes a burden to the patient. Though it is the leg that is generally affected by this disorder, other parts of the body are liable to its attack; but it is not usual for more than one part to be morbidly enlarged in the same individual. In the treatment of this disease in its earlier stages, the use of laxatives and diaphoretics is recommended, together with the application of iodine ointment to the part, and firm bandaging. In the latter stages, little can be done for its alleviation, and amputation of the part is generally discountenanced.

ELETTARIA, *e-let-tá-re-a*, the name of a genus of plants of the Nat. order *Zingiberaceæ*. The most important species is the *E. cardamomum*, or the Malabar cardamum, a native of Malabar. The seeds are officinal, and are aromatic and carminative. Cardamoms are seldom given alone, but as an adjunct to other remedies. They are best given in the form of compound tincture of cardamum, in doses of $\frac{1}{2}$ to 2 teaspoonfuls.

ELIXIR IODO-BROMIDE OF CALCIUM COMPOUND. (See CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF.)

ELIXIR OF VITRIOL. (See SULPHURIC ACID.)

ELIXIRS, *e-lik'-surz* [Lat. *elixo*, I extract by boiling], is a name given to various medical preparations, consisting of wine, or spirits of wine, and various aromatic and bitter vegetable substances. Some of the most elegant preparations of the pharmacopœia are now in the shape of elixirs. Among them may be mentioned, elixir of valerianate of ammonia; valerianate of ammonia and quinine; calisaya; calisaya and iron; calisaya, iron and bismuth; gentian and chloride of iron; iodide of lime and protoxide of iron; phosphate of iron and quinine; rhubarb and magnesia; iodo-bromide of calcium; pyrophosphate of iron; and a great many others.

ELM. (See ULMUS FULVA.)

EMACIATION, *e-ma-she-a'-shun*, is wasting of the tissues so that the body becomes thin. The process of emaciation, however, is very different from simple diminution of bulk; the latter may take place whilst the appearance of health is still retained; but with true emaciation, the skin and aspect generally, present an unhealthy appearance. There are few diseases which are not accompanied with loss of flesh or emaciation, and it is not unfrequently the first observable symptom. Dr. Watson remarks: "It occurs in complaints that are not commonly dangerous—as in dyspepsia, and in hypochondriasis, which is often connected with dyspepsia—and when it does occur, it marks the reality of the disease. This wasting happens in many fatal maladies—in pulmonary consumption, for example—and in dropsy, although the dropsical

enlargement sometimes masks it. It accompanies many acute diseases, and is reckoned an unfavorable symptom; for it shows that the body is not properly nourished. Sometimes the emaciation is so extreme that the integuments give way—the bones of the patient are said to come through his skin.

Galvanism prevents the wasting of limbs which are paralyzed, as well as restores action to parts in which the nerves have been impaired by injury, such as fracture, dislocation, bruises, etc. Apparently hopeless cases have been recovered after the ordinary means failed, by transmitting the galvanic current through needles stuck in the nerve of the part, or as near it as possible. This process is called local Faradization, after the celebrated Faraday. (See ATROPHY, ELECTRICITY.)

EMBROCATION, *em-bro-ka'-shun* [Gr. *embroche*, a moistening], a term originally applied to those external applications used for softening or dissipating swellings. The word has, however, extended beyond its primary meaning, and is applied to oleaginous and spirituous compounds which incite the surface of the skin to increased action, and produce all the effects of counter-irritants, or which, by their influence on the extremities of the nerves, assist in resolving spasm; thus acting as anti-spasmodics.

EMBRYO, *em'-bre-o* [Gr. *embryon*, from *embryo*, I bud forth], is the rudimentary state of any organized body. In Physiology it is applied to the fœtus in the womb before the fifth month of pregnancy, from its growth resembling the budding of a plant. Hence we have *embryology*, a description of the embryo; *embryotomy*, or the extraction of the embryo piecemeal in delivery.

EMETICS, *e-met'-iks* [Gr. *emetika*], are substances which excite vomiting. Many agents are capable of exciting vomiting, which are not classed as emetics, such as nauseous tastes or smells, swinging motions, such as that which causes sea-sickness, mechanical irritation of the throat, etc.; but these causes are very different from the specific action of a true emetic, which acts independently of taste or smell. Emetics constitute a class of our most valuable remedies, although not so indiscriminately and extensively used as they were formerly. The most generally used, and most useful emetics are, alum, antimony, chamomile, ipecacuanha, lobelia, mustard, sulphate of zinc, or white vitriol. Salt is sometimes used as an emetic; and the mechanical irritation of the throat is often resorted to with benefit for the purpose of exciting vomiting. The reader will find further information respecting the above emetics under their individual articles.

When an emetic is given, it should be mixed in the first place with a small quantity of water. Except in the case of sulphate of zinc—and

some other mineral emetics, not adapted for domestic use—some little time will elapse before the effects of the emetic are experienced, longer if the stomach be full of food, and *vice versa*. The first sensation is one of nausea, accompanied with flow of the saliva, slight faintness, and cold perspiration; at last the effort of vomiting supervenes, and the contents of the stomach are ejected. As soon as actual vomiting commences, as a general rule, but not before, some tepid fluid—water, gruel, chamomile tea, or such like—should be given in moderate quantity, not exceeding a pint at a time. A slight caution is requisite upon this head; for occasionally individuals under the action of an emetic, are encouraged to drink very freely of fluid and to distend the stomach. This is not well, for it not only embarrasses the action of the organ, but might cause its being lacerated or burst. It is also requisite to caution against giving the diluent fluid too soon, that is before the specific power of the emetic substance has come into action; if this is done, the dilution will either delay, or altogether prevent the desired effect. When there is much debility of the stomach, it is better to choose for the diluting fluid, a bitter, such as chamomile tea, which has the additional advantage of being itself emetic. As a general rule, the mineral act more quickly and violently than the vegetable emetics; for this reason the former are generally selected in cases of poisoning, such as that by opium, in which there is some difficulty in rousing the stomach to action at all, and in which it is important that it should be relieved of its contents as speedily as possible. In such cases, medical men may give the sulphate of copper; but for the unprofessional, the sulphate of zinc, or white vitriol, is the safest, and is a nearly equally efficacious remedy.

When there is much fever, and in some forms of inflammation, the salts of antimony, particularly tartar emetic, are most generally used if emetic action is desirable. As a simple emetic to relieve the stomach, and also in cases of chest affections, ipecacuanha will be found the best. In diseases of depression, mustard is most useful; and carbonate of ammonia may also be employed alone, or combined with ipecacuanha. In cases where the power of swallowing is lost, medical men can excite vomiting by the injection of emetic substances into the veins; this practice of course cannot be followed by the unprofessional, yet they may safely, and with much certainty of success, have recourse to mechanical irritation of the back of the throat, either by the finger or by a feather. A few individuals possess the power of spontaneous vomiting, or at least of exciting regurgitation of the food from the stomach into the mouth; a process somewhat analogous to the rumination of animals. Such persons usually suffer from dyspepsia, and have recourse to the operation to free the stomach from food it cannot digest.

The evening is generally the most suitable time for administering an ordinary emetic, as the stomach has time to recover itself during the night, and the uncomfortable nausea which often follows is less felt.

Emetics are used to fulfill various indications; the most direct and obvious being the emptying of the stomach of any noxious substances, either formed within the body, such as bile; or taken in by the mouth, as indigestible food or poison. Fortunately, these matters often of themselves excite vomiting, but in many instances, they do not sufficiently empty the stomach, in which case the action must be kept up, or re-excited, either by a diluent or by some emetic medicine. It must be remembered, however, that in the case of some poisons it is not desirable to dilute largely. In addition to their power of emptying the stomach, emetics are valuable from the mechanical effects, both general and local, which they exert upon the body. Formerly, the general mechanical effect, or "shock," of an emetic, was believed to have the power of checking fever and other diseases at their outset; it is not now, however, much trusted to by medical men, and if it does not do good, is apt to prove injurious, by causing an irritable condition of the organ, which may continue throughout the disease. In many cases of incipient disease, however, characterized by depression, coldness of the skin, etc., the mechanical action of a smart emetic of ipecacuanha, either alone, or with 5 to 8 grains of carbonate of ammonia, is most beneficial, by rousing the system, and removing the tendency to internal congestion, or accumulation of blood.

Another, and most beneficial, mechanical emetic, is in the case of children suffering from affections of the chest, with accumulation of mucus, or phlegm. Children cannot expectorate, and are liable to be suffocated if the phlegm is in large quantity and cannot be removed; nothing ensures its removal so effectually as an emetic, or rather emetics repeated from time to time—every few hours—according to circumstances. In cases of jaundice and overloaded liver, the mechanical action of emetics is often beneficially had recourse to. In consumption, the periodical exhibition of emetics has been recommended. In spasmodic diseases—either general, as hysteria—or local, as in spasms of the stomach—emetics are beneficial; in the latter case, often, of course, by freeing the stomach from the offending cause of the disorder. In asthma, they often relieve when nothing else will.

Emetics are not always safe remedies; in pregnancy, in persons of very full habit, particularly if there is determination to the head, in rupture, in falling down either of the bowel or of the womb, vomiting should, if possible, be avoided. The ancients held the opinion that emetics strengthened the stomach, and they were even used in the

training of the athletæ; modern experience certainly does not uphold the fact, for the habitual use of these agents assuredly injures the tone of the organ, and weakens its power.

An error is frequently committed in using antimonial wine, as an emetic; it is far too depressing for general purposes. For these ipecacuanha is quite the safest agent of the class; it should be given in powder mixed with water, and not in the form of wine, if the former is procurable. (See ANTIMONY, CHAMOMILE IPECACUANHA, LOBELIA INFLATA, TARTAR EMETIC, ETC.)

EMETIC, TARTAR. (See ANTIMONY.)

EMETINE, *em'-e-tin*, the active principle of ipecacuanha.

EMIGRATION. (See ACCLIMATIZATION, CLIMATE.)

EMMENAGOGUES, *em-men'-a-gogz* [Gr. *emmenia*, the menses, and *ago*, to induce], are medicines which exert, or are supposed to exert, their action upon the womb, and to promote the menstrual discharge. (See MENSTRUATION.)

EMOLLIENTS, *e-mol'-yents* [Lat. *mollis*, soft], a term employed to denote those substances which are used externally for the purpose of softening the part of the body to which they are applied. They are the expressed oils, poultices and fomentations of various kinds, liniments, ointments, and embrocations.

EMPHYSEMA, *em-fe-se'-mā* [Gr. *emphysao*, to inflate], is a medical term applied to two very different disorders. In one case it denotes a state of coalescence and unnatural distension of the air-cells of the lungs. (See LUNGS.) In the other, it is applied to the distension or blowing up of the cellular or areolar tissue of the body by air. This latter form of emphysema, sometimes follows upon the accident of fractured rib, when a point of the bone penetrates the lung. In this case, with every breath drawn in, air passes from the lung into the cavity of the chest, from whence it finds its way through the wound made in the walls of the cavity, and by this means becomes diffused through the cellular tissue; the features and the whole body become greatly swollen, and when the surface is indented by the finger, a crackling sensation is experienced. The mere distension of the cellular tissue is not a circumstance of so much importance as the accident which gives rise to it, but in those perfectly unaware of the possibility of such an occurrence, the appearance presented by the affection would cause much alarm; of course the broken rib itself should be attended to; the emphysema may be relieved by punctures made in the skin by a lancet, and by the application of bandages. (See FRACTURES, ETC.)

EMPYEMA, *em-pe-é-mā* [Gr. *em*, within, *pyom*, pus], is a collection of matter in the cavity of the chest, between the lung and the ribs.

EMPYREUMA, *em-pe-ru'-ma* [Gr. *empyreuo*, to set on fire], is the peculiar and often offensive smell which many substances acquire after exposure to considerable heat in close ovens or vessels. The fact of an article of diet becoming empyreumatized renders it unwholesome and irritating to the stomach; on this account baked meats, pastry, etc., are more apt to disagree than the same articles properly roasted or boiled. (See ROASTING, BOILING.)

EMULSION, *e-mul'-shun* [from Lat. *emulgeo*, *emulsus*, to milk out], is a mixture of oil with water by the intervention of a third substance. This may be effected by means of gum mucilage, syrup, etc., but perhaps the best agent for forming emulsions is the yolk of egg. The oil must first be rubbed up with the yolk, and then distilled rain, or perfectly soft water added gradually. Milk, which is itself a natural emulsion, is also a very good agent for uniting some oily, or such like matters resembling the oils in composition, with water, particularly camphor. (See CAMPHOR, CASTOR-OIL, TURPENTINE.)

ENAMEL OF THE TEETH. (See TEETH.)

ENCEPHALITIS, *en-sef-a-li'-tis*. Inflammation of the brain. (See BRAIN, DISEASES OF THE.)

ENCYSTED, *en-sist'-ed* [Gr.], is applied to tumors consisting of a fluid or other substance enclosed in a cyst, bag, or sac.

ENDEMIC, *en-dem'-ik* [Gr. *endemikos*, from *en*, among, and *demos*, the people], in Medicine, is a term employed to designate diseases peculiar to a certain class of persons, or to a particular district. Thus ague is an endemic disease in low marshy countries; the goitre in the Alps. They differ from epidemic diseases, which, without reference to locality or class, attack many persons at the same time in the same place, and are contagious; as influenza, scarlet fever, etc.

ENDERMIC, *en-der'-mik* [Gr. *en*, in, and *derma*, the skin], is the transmission of medicinal actions to the constitution through the skin. (See SKIN.)

ENDOCARDITIS. (See HEART, DISEASES OF THE.)

ENEMA. (See CLYSTER.)

ENLARGEMENT OF THE HEART. (See HEART, DISEASES OF THE.)

ENTERITIS, OR INFLAMMATION OF THE BOWELS, *en-te-ri'-tis* [Gr. *enteron*, the intestines].

Causes.—Inflammation may be lighted up in the substance of the bowels by anything which impedes the passage of their contents. Sometimes the canal of the bowel is closed by adhesion and bands of membrane, the morbid results of previous inflammatory attacks. There is a peculiar condition of the bowels, sometimes causing a firm obstruction

to the fæces, and finally setting up acute inflammation, called intussusception, consisting of one part of the bowel slipping into another which is below it—like putting a finger into a glove. This state of things is frequently met with in children who have suffered during the last few hours of their life from acute scrofulous inflammation of the brain. The obstruction to the bowels may be due also to thickening of their coats, to tumors pressing upon them from without, or some morbid accumulation within. Various substances may accumulate within the bowels, giving rise to obstruction, as hardened fæces; and patients in the constant habit of taking carbonate of magnesia or chalk as medicinal agents are in danger of suffering from intestinal concretions, as these drugs have a great tendency to remain in the bowels and accumulate. In rare instances cancerous growths affect the bowels and stop up their channel, giving rise to congestion and inflammation.

Symptoms.—The symptoms of inflammation of the bowels resemble very closely those of inflammation of the serous membrane in which they are packed, known as peritonitis (which see). There is pain in the abdomen, increased by pressure, movement and inspiration. The pulse is quick, hard and resisting, afterwards growing small and thready. The skin is hot and dry, the tongue furred, and the bowels obstinately constipated. There are distinct chills, thirst is urgent, and nausea and vomiting distress the patient. Should the disease advance, typhoid symptoms set in; the extremities grow cold, the belly distended, and the features sharp and ghastly. The tongue becomes red and dry, and sordes appear on the teeth. The pain ceases, and the countenance no longer wears the anxious expression it did in the earlier stage of the disease, but has now a dull aspect, and the surface of the body is bathed in cold perspiration. The head is generally unaffected, the intellect remaining clear to the last, but in some cases delirium forms a troublesome symptom. Inflammation of the bowels is difficult to diagnose, from the same condition affecting the peritoneum covering them; for the symptoms of the two diseases are much alike, the only difference being, that when the bowels themselves are inflamed their function is necessarily interfered with and there is nausea and vomiting, with obstinate constipation. But, as previously stated, the bowels are generally confined also in inflammation of the serous membrane covering them; but not necessarily so. The treatment of the two diseases is almost the same. (See PERITONITIS.) Inflammation of the bowels must be carefully distinguished from colic, which has been already described as consisting of acute pain in the abdomen, especially about the navel, coming on in paroxysms, and not increased by pressure or attended with much fever although vomiting and constipation are its most troublesome symptoms. When the intestines

are inflamed, the pain is intensely acute and much increased by pressure. But that of colic is oftentimes relieved by firm support to the abdomen, and the sufferer of his own accord places himself upon his stomach as he lies in bed. But patients suffering from inflammation of the bowels assume a very characteristic posture in bed, lying upon their backs, with their knees drawn up; and their abdominal muscles are not moved as they ordinarily are in the process of respiration for fear of increasing the pain, but the functions of inspiration and expiration are carried on solely by the muscles of the chest; and the respiration is said to be thoracic. As the pain of colic is not increased by pressure, the respiratory process is carried on as usual; and thus this becomes a diagnostic character of great value. Enteritis is generally ushered in with shivering and distinct rigors; the mouth is parched, and thirst urgent. The skin is hot and dry, and the pulse quick and resisting; but in some cases its onset is more insidious, and differing in no particulars from that of simple colic.

Treatment.—The patient must be confined to bed, and kept in the horizontal posture. The diet should be nutritious, but not stimulating, consisting of milk, eggs, beef-tea, broth, and all kinds of farinaceous food, sago, gruel, arrowroot, rice, or tapioca. A few leeches may be applied to the abdomen, and a linseed poultice placed over their bites, which may be allowed to bleed freely into this soothing application.

In former days bleeding and mercury were freely resorted to, and the antiphlogistic method of treatment rigidly adhered to. But such lowering remedies as these are quite unnecessary; and some practitioners of the present day object even to the use of leeches. Purgatives are inadmissible, as they tend, not to lessen the inflammation, but on the contrary, to increase it, by exciting the vermicular contraction of the bowels. The lower part of the intestines may be emptied by warm injections; and these will act at the same time as a kind of internal fomentation. (See CLYSTER.) Opium should be freely given, and will be found an invaluable remedy in this disease.

Take of Laudanum.....	One dram.
Sweet spirits of nitre.....	One and a half drams.
Solution of the acetate of ammonia.....	Two drams.
Camphor water.....	Six ounces.— <i>Mix.</i>

Give two tablespoonfuls every four hours.

The following pills may be given; but the above mixture is to be preferred, as the stomach may not be able to bring the solid form into solution:

Take of Powdered opium.....	Four grains.
Sulphate of quinine.....	Eight grains.
Confection of roses.....	Twenty grains.— <i>Mix.</i>

Divide into 8 pills, 1 of which may be taken every four or five hours.

Some practitioners give Battley's solution of opium instead of laudanum.

Take of Battley's solution of opium.....	One dram.
Nitrate of potash.....	One scruple.
Bicarbonate of potash.....	Half dram.
Pure water.....	Eight ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every four hours.

When the inflammatory symptoms have passed away, mild purgatives may be given, and a more generous diet allowed. Should there be any tendency to fainting or collapse, stimulants may be ordered, notwithstanding the inflammatory character of the affection.

When the disease is met with in children, leeches and hot fomentations may be applied to the abdomen; but opium must be given with great care, as it acts so much more powerfully upon them than upon adults. It may be given thus to a child three or four years old:—

Take of Laudanum.....	Ten drops.
Mucilage of acacia.....	Two drams.
Syrup.....	One dram.
Pure water.....	One ounce.— <i>Mix.</i>

Give a small teaspoonful every four hours.

Should the disease assume a more chronic form, a blister may be applied to the abdomen; but should on no account be resorted to during the acute stage. (See COLIC, PERITONITIS.)

ENTOZOA, *en-to-zo'-a* [Gr. *entos*, within, and *zos*, life], are parasitic animals which are found in a living state within the body. The most common entozoa in man are the various forms of worms. (See WORMS.)

ENURESIS, *en-ure'-sis*, incontinency of urine. (See URINE; BLADDER, DISEASES OF THE; BED-WETTING.)

EPHELIS, *e-fe'-lis* [Gr. *epi*, upon or for, and *elios*, the sun]. The term denotes not only freckles, and the larger brown patches, which likewise arise from exposure to the direct rays of the sun, as the name imports, but also those large dusky patches, which are very similar in appearance, but occur on other parts of the surface which are constantly covered. The best applications to such blemishes are very dilute alcohol, mineral acids, and potash, so dilute as just to be sensible to the tongue. One form of diffused ephelis is of a brownish color, and followed by desquamation of the skin, and is symptomatic of uterine and intestinal disturbance. (See FRECKLES.)

EPHEMERA, *e-fem'-era*, a fever which does not last more than twenty-four hours.

EPIDEMIC, *ep-e-dem'-ik* [Gr. from *epi*, upon, and *demos*, the people], is a general term applied to diseases which prevail among a large portion of the people of a country or place for a certain time, and then

gradually disappear. The causes assigned for the prevalence of epidemic diseases are very various, and are by no means determined. The most generally assigned causes are a peculiar state of the atmosphere or climate, the seasons, etc. Defective ventilation or drainage, and unwholesome food or drink, are also among the causes that induce epidemics. Most epidemic diseases are likewise contagious, and thus, when once induced, spread with great rapidity. During the prevalence of an epidemic, it is proper to take particular care of the health; attending to cleanliness and ventilation, as the best means of resisting its influence.

EPIDEMIC CATARRH, OR INFLUENZA. (See INFLUENZA.)

EPIDERMIS, *ep-e-der'-mis* [Lat.], the outer or scarf skin, or cuticle. (See SKIN).

EPIGÆA REPENS, *ep-e-jé'-a re'-penz*, or trailing arbutus, a perennial plant belonging to the Nat. order *Ericaceæ*, and commonly known as gravel plant, ground laurel, may flower, and winter pink. It grows in sandy woods and rocky soils throughout the Middle and Northern States. The leaves are the parts used in medicine. It is diuretic and astringent, and is by many preferred to uva ursi and buchu, in gravel and other diseases of the urinary organs. Dose: of the infusion, 1 to 2 fluid ounces; of the fluid extract, 1 to 2 teaspoonfuls, three times a day. (See INFUSION.)

EPIGASTRIUM, *ep-e-gas'-tre-um* [Gr. *epi*, upon, and *gaster*, the belly], denotes that part of the body immediately over the stomach; *epigastric* is used to denote what appertains to this part. (See ABDOMEN).

EPIGLOTTIS, *ep-e-glot'-tis* [Gr. *epi*, upon, and *glotta*, the tongue], is a cartilage of an oval or heart-shaped figure, situated at the root of the tongue, which falls upon and covers the glottis or opening into the larynx, so as to protect it, particularly during the passage of food, in the act of swallowing. (See LARYNX, DEGLUTITION, ETC.)

EPILEPSY, OR FALLING SICKNESS, *ep'-e-lep-se* [Gr. *epilepsis*, from *epi*, and *lambano*, I seize], is one of the very afflicting maladies to which man is subject, belonging to the class of convulsive diseases. It is also one of the most eminently characteristic, and at the same time terrible to witness, when it occurs in its severer forms.

The fits, or convulsive seizures, of epilepsy,⁴ are most varied as to occurrence; occasionally an individual has suffered from one paroxysm, and one only, the disease never again returning; in other cases, years have intervened; frequently the interval is one of months, but again, daily fits, or even two or three times a day, are the rule in the worst cases.

Causes.—Epilepsy may be induced by causes affecting the nervous

system; the excitement of joy or passion, or the depression of grief, intoxication, and sexual excesses, are the most frequent, not only actual exciters, but also predisposers, to the attack of epilepsy.

Of the predisposing causes there is no question that hereditary tendency is a powerful one, and especially if the constitution of the family be scrofulous. Epilepsy in the offspring has been traceable to no other cause than dissipated, and especially drunken, habits in the father. It is frequently observed to be concomitant with malformation, or at least mis-shape, of the head of the sufferer.

Epilepsy may be a congenital disease, that is, the child is born with the tendency, and becomes subject to the fits, either with or without apparent cause, early in life; indeed, many of the convulsions of children occasioned by teething, etc., are in fact epilepsy, but as they arise from causes irritating the brain, and not from affection of the organ itself, they are possibly not repeated when the cause of irritation has subsided. If, however, the tendency exists strongly in the constitution, and has not developed itself before puberty, it is very apt to do so at that period, and more especially if favored by circumstances which lower the tone of the body generally, or of the nervous system in particular; but no period of life is exempt from becoming the period of epileptic development, even to old age.

A person may die in an epileptic fit, even in the first, but this is seldom the case; more generally the disorder does not immediately threaten life, but the individual goes on from year to year, suffering more or less, and still lives; even when the fits occur daily, or two or three times a day, this is the case. When death does occur early in the disease, it is more probably due to suffocation arising from the spasm of the muscles of the throat and neck, than to the brain affection. But if life is continued to the confirmed epileptic, too often intellect becomes affected.

Certain precautions are always requisite with those who suffer from epilepsy, and as a general rule it may be laid down that they should never, if possible, place themselves, or be placed, in situations in which a sudden seizure will expose them to danger. Thus, employments which necessitate riding on horseback, ascending heights, etc., ought never to be engaged in; neither such as those in which even momentary unconsciousness may involve the lives of others in danger. Many, it is true, have sufficient warning to enable them to prepare for the attack, and to withdraw from danger, but this is not always possible; the worst case of burning—or rather roasting—the author ever witnessed, was in consequence of a fall into the fire, in an epileptic paroxysm: when means will allow of it, the epileptic ought to have an attendant constantly with him. When an individual is seized with a fit of epilepsy,

but little can be done for its immediate relief; the chief thing is to prevent the patient inflicting injury upon himself, by striking against surrounding objects, and also to protect the tongue. Those who are much in attendance upon the epileptic, ought always to have on hand a piece of india-rubber, or a thick india-rubber ring—such as is used for children teething—to insert between the teeth. All fastening about the body, such as the neckcloth, etc., ought to be loosened, and air freely admitted; the head should be raised, and cold wet cloths *may* be applied to it if there is much heat. It has been advised to cram the mouth full of salt as soon as the fit comes on. Dr. Watson, who had the plan tried in hospital, thought it seemed to curtail the duration of the convulsion.

Symptoms.—The attack of epilepsy is for the most part sudden; the individual in the midst of some accustomed occupation, or whilst holding active communion with persons around, suddenly utters a loud—a fearful—cry, and, if unsupported, falls to the ground; the eyes are staring or rolling, the head, or rather chin, is drawn towards one shoulder, the color becomes dark or livid, the veins of the face and temples turgid with blood, and the features are thrown into convulsive movement; there is froth at the mouth, whilst a kind of choking noise is often made in the throat; the limbs are also more or less convulsed, and the excretions are often expelled involuntarily. The tongue very often suffers from being bitten, and the teeth have even been fractured during the fit. Gradually, these convulsive movements diminish, and the person awakes to consciousness, with a heavy stupid look, or falls into a deep lethargic sleep which continues for some hours; but even when this is roused from, there often remains slight temporary suspension of the activity of the mental functions. Such are the phenomena of a severe epileptic paroxysm; the disease, however, occurs in much milder forms, even in those who at other times suffer from it in greater intensity.

The attack in many cases appears to bystanders to come on suddenly, and without warning; but most epileptic patients are sensible for some time previously of the approach of the paroxysm, and even for twenty-four hours are always aware that a fit is at least probable, although its direct accession may not be certainly known until just previous to its occurrence. It may, however, happen that these symptoms will pass off without a fit, either independent of any effort of the patient to ward off the attack, or in consequence of some of those measures found to be efficacious and adopted by epileptic patients for the purpose.

The premonitory symptoms vary greatly: low spirits, or unusual irritability, sometimes an increased energy, dizziness, noises in the ears, floating specks before the eyes, and many other signs connected with

disorder of the nervous system, are the precursors of the epileptic paroxysm; but the most generally marked, and remarked, precedent, is the epileptic aura, a sort of creeping sensation, which is described by the patient as arising at some particular part of the body, such as the extremity of a limb, and gradually ascending upwards to the trunk or head, till the individual loses his consciousness in the convulsions.

Epileptic seizures are very frequent in the night-time, just as the person is falling asleep; but they may occur at any period of the twenty-four hours.

Treatment.—Many drugs have been said to alleviate this disease, and may be tried with advantage during the intervals, but our hopes will often be disappointed; several of these medicines act as nervine tonics, as the salts of silver, zinc, and iron. When a patient has received a warning of the fit approaching, it may be warded off by the timely administration of chloroform, or by the following antispasmodic draught:

Take of Sulphuric ether.....Twenty drops.
Compound tincture of lavender, Fifteen drops.
Camphor water.....One and a half ounce.—*Mix.*

When the disease is due to emotional influences, great benefit will be derived from opium or morphia given at bedtime.

Take of Laudanum.....Twenty drops.
Water.....One and a half ounce.—*Mix.*

Let it be taken every night at bed-time.

When the patient's blood is impoverished, and his countenance pale, some tonic must be given.

Take of Sulphate of zinc.....Twenty grains.
Pure water.....Six ounces.—*Mix.*

Take 2 tablespoonfuls three times a day. Or if iron be preferred as a tonic:

Take of Ammonio-citrate of iron.....One dram.
Compound spirits of ammonia.....Two drams.
Distilled water.....Eight ounces.—*Mix.*

Let 2 tablespoonfuls be taken every six hours

Of all remedies which have been employed in the treatment of epilepsy, the most valuable is the bromide of potassium, which may be given in 10 to 30 or 40 grain doses three times a day. In many instances it diminishes the tendency to the fits, and in some no fit occurs while the medicine is being used. It appears to act by diminishing the nervous excitability. Bromide of ammonium acts in the same way in similar doses. The anti-epileptic remedy of the celebrated Brown-Sequard was composed of these two bromides in conjunction with iodide of potassium, bicarbonate of potash and infusion of calumba. He insisted, however, on a course of twelve or eighteen months of the medicine.

Preventive treatment.—From what has now been said, it must be evident that epilepsy is no disease for domestic management in a curative point of view, but that it affords much room for preventative and other means.

In families in which a tendency to epilepsy is known to exist, the greatest care should be taken to guard the nervous system from all causes either of irritation or exhaustion. In infancy, the period of teething and the condition of the bowels will require especial attention, and the tone of the system to be maintained as directed in article CHILDREN. The physical strength and health are to be cultivated in early life, even at some sacrifice of educational advancement; at puberty, the strictest eye must be kept upon the habits and tendencies, and whilst the constitution is developing and growth going on, all exhausting exercises prevented; indeed, during life the suspicion of a tendency to so terrible an affliction as epilepsy should be a never-forgotten check upon excess in every way—a check upon the man who consumes his energies in the exertions of business or of study, as well as upon those who waste them in the pursuits of vice or sensualism. In addition to passive preventive means, all those measures which are fully laid down throughout this work for the preservation of health should be well attended to, particularly the use of cold water to the head, spine and surface generally, if there is sufficient reaction to bear the application.

Care must be taken in the curing or suppression of long accustomed, continued discharges, such as habitual diarrhœa, bleeding from piles, etc.; at the same time it must be borne in mind, that the discharge by weakening the system, may be itself the cause of the disease; but this is a point the medical man must determine. The use of alcoholic stimulants and of tobacco, engagement in exciting work or recreation, should all be scrupulously avoided by those having a tendency to this disease. Diet should be non-stimulant, the articles of food being well-cooked and taken at regular intervals, while sufficient time for thorough mastication and for digestion must be allowed. (See BRAIN; STIMULANTS, ALCOHOLIC; TOBACCO, CHILDREN, HEALTH, AURA EPILEPTICA.)

EPILOBIUM ANGUSTIFOLIUM, *ep-e-lo'-be-um an-gus-te-fo'-le-um*, or willow herb, a perennial plant belonging to the Nat. order *Onagraceæ*, sometimes known as roseboy. It grows on waste lands in most of the Northern States. The leaves and the roots are the parts used in medicine. They are tonic, demulcent, and astringent, and are used in chronic dysentery and diarrhœa, the whites, profuse menstruation, and in ulcerations of the throat and mouth. Dose of the infusion, 3 to 4 fluid ounces three times a day. (See INFUSION.)

EPISPASTICS, *ep-e-spas'-tiks* [Gr. *epi*, and *spao*, to draw], are

substances used medicinally for producing inflammation of the skin, which may be followed either by blistering or by the formation of matter. (See BLISTERS, ETC.)

EPIZOOTIC, *ep-e-zo-ot'-ik* [Gr. *epi*, upon, and *zoon*, an animal]. When a disease prevails among the inferior animals in the same manner as an epidemic does among men, it is said to be epizootic.

EPSOM SALTS, *ep'-sum salts*, are a compound of magnesia and sulphuric acid—sulphate of magnesia—and derive their name from having been first obtained by the evaporation of the water of a spring, situated near Epsom, in England, which contains the salt in large quantity. They are now prepared largely by manufacturing chemists from magnesian limestone, and also from sea-water. They are sold in the form of small, pure white, needle-like crystals, and from their cheapness are extensively, indeed too much so, used among the poor as a general aperient, and not unfrequently by all classes. Epsom salts are tolerably certain in their action, do not gripe much, and produce free watery evacuation of the bowels; on these accounts the medicine is a most valuable one in many diseases, particularly in persons of a full habit, but, as generally employed, it is not suitable for a common or frequently-repeated aperient. From its being in many instances taken in a state of too concentrated solution, it induces a discharge of the watery part of the blood into the bowels, and thus seriously debilitates; moreover, after the action of a dose of Epsom salts, the bowels in those liable to habitual constipation, are very apt to be left with a greater tendency to inaction than before; nevertheless, in persons of full strong habit, an occasional dose of the medicine is, without question, beneficial, but it should be taken in smaller quantity and much more largely diluted than is usually done. The question of dilution is a very important one in the administration of this salt, and if attended to, renders it safe and efficient, even for the comparatively delicate. From $\frac{1}{2}$ to 1 teaspoonful should be dissolved in at least 6 ounces or $\frac{1}{2}$ a pint of cold or tepid water, and taken on first rising in the morning, when the dose should be followed by the fluid breakfast; many persons liable to constipation find this method a simple and effectual remedy which may be used for weeks together. From 5 to 10 drops of dilute sulphuric acid are often a good addition to the dose, and one which at the same time corrects in some degree the bitterness of the salt. If there is debility, either of the stomach, or generally, from a $\frac{1}{4}$ to $\frac{1}{2}$ a grain, either of quinine or of some salt of iron may be added. The quinine appears to increase the aperient power. The most convenient method of taking Epsom salts in this form is to dissolve 1 ounce in 1 pint—16 ounces—of water, adding the acid or other ingredients in proper proportions. Of

the solution, from a $\frac{1}{2}$ to 1 whole wine-glassful may be taken the first thing in the morning, diluted with the proper quantity of water before taking, or if preferred, by the latter being drank immediately after the medicine.

The combination of Epsom salts with infusion of senna, constituting the common black draught, is one of the best forms of active occasional purgative in common use. It is well to bear in mind, that there is considerable resemblance between oxalic acid in its crystalline commercial form and Epsom salts, and that in consequence, fatal mistakes have occurred. The intensely acid taste of a single crystal of the former would at once clear up any doubt; perhaps it might be well always to use so simple a test. (See OXALIC ACID, CATHARTICS, SENNA.)

EQUISETUM HYEMALE, *ek-we-se'-tum hi-e-ma'-le*, a perennial plant belonging to the Nat. order *Equisetaceæ*, and commonly known as horsetail, scouring rush, and shave-grass. It grows in wet grounds in the Northern and Western States. It is diuretic and astringent; may be used freely in dropsy, suppression of urine, gravel and other affections of the kidneys. No nicety need be observed in the dose.

ERECINTHITES HIERACIFOLIUS, *e-rek-thi'-tes hi-e-ras-e-fo'-le-us*, or fireweed, a perennial plant belonging to the Nat. order *Asteraceæ*. It is found growing in recent clearings, especially those that have been burnt over. The leaves and the root are both employed medicinally. It is tonic, astringent, and alterative, and has been used in diseases of the lungs, stomach, and bowels; in cholera and dysentery, and in summer complaints of children. Dose: of the infusion, 1 to 2 fluid ounces; fluid extract, $\frac{1}{2}$ to 1 teaspoonful, three or four times a day. (See INFUSION.)

ERGOTINE, *er'-got-in*, the active principle of ergot. (See *SECALE CORNUTUM*.)

ERGOT OF RYE. (See *SECALE CORNUTUM*.)

ERIGERON, *e-rij'-e-ron*, or flea-bane. There are several varieties of this plant, including the Canada flea-bane, growing together and having similar properties, and therefore described as one. They belong to the Nat. order *Compositæ*, and grow abundantly in various parts of the United States and Canada. The whole herb is used. It is diuretic, astringent, and tonic, and is used in affections of the bladder and kidneys, and also in dropsy, gout, and diabetes. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 1 to 2 fluid ounces, three or four times a day. The volatile oil is powerfully astringent, and is used as a topical application in piles, and in doses of 4 or 5 drops in uterine hemorrhage, and bleeding from the lungs.

ERODIUM CICUTARIUM, *e-ro'-de-um sik-u-ta'-re-um*, or storks-

bill, a small tree belonging to the Nat. order *Balsaminaceæ*, and found growing in the Northern States. A decoction of the dried bark, in doses of 2 fluid ounces, three times a day, has been found very useful in dropsy. (See DECOCTION.)

ERUPTION, *e-rup'-shun*, a diseased appearance on the skin. (See SKIN, DISEASES OF THE.)

ERYNGIUM AQUATICUM, *e-rin'-je-um a-kwat'-e-kum*, or water eryngo, a perennial herb belonging to the Nat. order *Umbellifereæ*. It is found growing in wet lands, from Virginia to Texas. It is diuretic, stimulant, diaphoretic, expectorant, and, in large doses, emetic. It has been found useful in dropsy, scrofula, pulmonary affections, and gonorrhœa, and externally is said to be efficacious as an antidote in snake bites. Dose: of the powder, from 20 to 40 grains; of the decoction, 1 to 4 fluid ounces, three or four times a day. (See DECOCTION.)

ERYSIPELAS, *er-esip'-e-las* [Gr., from *eruo*, I draw, and *pelas*, near or adjoining], sometimes called St. Anthony's fire, or the rose.

Symptoms.—When occurring in its most distinct form, as affecting the head and face, the disease comes on in much the same way as other febrile disorders. There is a day or two during which the patient feels languid and out of sorts, and very frequently has some amount of sore throat; after which a shivering attack occurs, followed, perhaps, by vomiting, or slight diarrhœa; and then the blush of erysipelas becomes visible on some part of the face, usually in the neighborhood of the nose. The part so affected is red, hot, and painful; it is also swollen, and has a hard feeling to the touch. The tendency of the inflammation is to spread, and very generally it does so till the whole face and the greater part of the head, including both ears, become involved, causing the greatest degree of deformity: the lips become enormously swollen; the eyelids so filled with serous fluid as completely to close the eyes. Commencing on one side of the face, in some cases, instead of passing to the other, the blush extends upwards to the scalp, or it may creep along to the ear, and over the neck. Sometimes regular blisters appear over the part most inflamed. In the course of three or four days the redness and swelling subside, and then a drying separation—what is called desquamation—of the cuticle or scarf-skin occurs; while, in the loose cellular tissue of the eyelids under the skin, and at different parts of the scalp, matter is very likely to form, and, after a time, to require free vent by the use of the lancet.

The affection, thus briefly described, varies very greatly in its degrees of severity: it may be a comparatively trivial disorder; and, on the other hand, accompanied from the outset by marked constitutional disturbance, it is often a dangerous disease, terminating not unfrequently

in death. In violent cases the fever is high, and there is much wandering of the mind, or delirium; while, before the fatal event, there usually occur the symptoms of effusion in the brain, and the patient lies in an insensible state or coma. The affection of the throat may, in some instances, become a source of danger; and, in all cases of erysipelas, the condition of the throat should be observed.

Medical opinion is divided as to the contagious property of this disease: It is not improbable that, in circumstances the most favorable for its propagation, it is communicable. Very frequently it occurs in an epidemic form; while there are varieties of the disease, which need not, however, be particularly insisted upon here. The surgeon is apt to find erysipelas, in certain seasons, attacking wounds and sores; and more especially is this the case when patients are from necessity crowded together in badly-ventilated wards or apartments, and damp as well as low-lying localities. The accoucheur meets with erysipelas in circumstances bearing a close resemblance to the experience of the surgeon, and looks upon the disease as one of the greatest dangers to the lying-in woman, for in an intimate manner is the affection of the skin and mucous membrane connected with the form of fever incidental to such patients, known as puerperal fever.

The unfavorable termination of attacks of erysipelas are most to be apprehended in persons of debilitated frame of body, and very specially in those who have led dissolute and intemperate lives.

Treatment.—Rest, saline laxatives, cooling drinks, and low diet, are the elements of treatment in mild and simple cases. A dessertspoonful of effervescent citrate of magnesia, or 5 grains of calomel, followed by a dose of castor-oil, will speedily relax the bowels. Ten grains of Dover's powder may be taken at night, and if there be much fever, a draught composed of a dessertspoonful of spirit of mindererus, and $\frac{1}{2}$ a teaspoonful of sweet spirit of nitre, in a wineglassful of water, may be given every three or four hours, until the fever subsides. Tincture of iron, in doses of from 10 to 20 drops, four or five times a day, is a very efficient remedy. It should be given in sweetened water and sucked through a straw, so that the acid will not injure the teeth. If symptoms of depression ensue, wine, beef-tea, quinine, and carbonate of ammonia should be given. Nitric acid, as follows, may be given where there is much weakness:

Take of Dilute nitric acid.....	One dram.
Syrup of ginger.....	Half an ounce.
Pure water.....	Five and a half ounces.— <i>Mix.</i>

Give a tablespoonful every four hours.

Local applications to the reddened surface either do a great deal of

good or a great deal of harm. They should be used with great caution until medical aid arrives. Dry flour, or rye-meal may be dusted over the surface from a flour dredge, or light muslin cloths, steeped in thick linseed tea may be spread over the diseased parts. These can do no harm, and they are very soothing to the hot inflamed skin.

The lead and opium wash, made by dissolving $\frac{1}{2}$ an ounce of sugar of lead and 30 grains of powdered opium in 2 quarts of water, frequently gives almost immediate relief. Nitrate of silver, 20 grains to 1 ounce of water, with 10 drops of dilute nitric acid added, painted over the surface twice a day, is also an efficient remedy. Tincture of iodine, mixed with an equal quantity of alcohol, or tincture of iron, applied with a camel's hair brush, generally succeed in arresting the spread of the disease. It should be painted, not only on the inflamed surface, but a little space beyond, on to the sound skin. In the violently inflammatory form of the disease, when the tissues beneath the skin become filled with matter, free incisions must be made to give it vent. Erysipelas is no disease to be experimented on with domestic remedies. Many cases, mild in the beginning, result fatally, and medical aid should be summoned early in the disease. (See ERYTHEMA.)

ERYTHEMA, *er-e-the'-ma* [Gr. *eruthros*, red], is a more superficial and evanescent inflammation of the skin than erysipelas. The most familiar instance of it is the inflammation produced by the chafing which occurs in stout children, or adults, between the folds of the skin, and which has a tendency to spread from its point of origin. The application of cloths dipped in tepid water, or in the sugar of lead and opium wash recommended in erysipelas, will allay the burning sensation. A few grains of gray powder should be given at bed-time, followed by castor-oil or senna in the morning, and then quinine administered in doses suited to the age of the patient. Rapidly spreading erythema, even in an infant, quickly yields to small doses of quinine. (See ERYSIPELAS.)

ERYTHROXYLON COCA, *e-re-throks'-e-lon ko'-ka*, coca leaves, a powerful nervous excitant. It is said to give great vigor to the muscular system, sustaining the human frame under extreme physical exertion and fatigue. Dose of the fluid extract, from 2 to 4 teaspoonfuls.

ESCHAR, *es'-kar* [Lat. *eschara*], is the portion of killed animal tissue which separates from the living body after the application of a caustic or cauterant.

ESCHAROTICS, *es-ka-rot'-iks* [Gr. *eschareo*, I form an eschar], is a name given to those substances of a caustic nature which destroy the vitality of the part to which they are applied by burning. (See CAUSTIC, CAUTERY.)

ESSENCE, *es'-sense* [Lat. *essentia*], properly that part of anything

upon which its most remarkable qualities depend. The term is usually applied to the mixture of a volatile oil with alcohol, as essence of pepper-mint. They are strictly speaking, tinctures.

ESSENCE OF BEEF. (See COOKERY FOR THE SICK.)

ESSENTIAL OILS, *es-sen'-shul* [Lat. *essentialis*], in Chemistry, a term applied to the odorous principles of plants. They are also called volatile oils to distinguish them from the fixed oils. They are extracted from different parts of plants, some plants yielding two different essential oils. Thus the orange yields two distinct essential oils, one from the flower, the other from the peel of the fruit. The principal use of essential oils, is in perfumery; but certain of them are used for flavoring, and in medicine.

ETHER, *e'-ther* [Lat. *æther*], a limpid, colorless, volatile liquid, obtained by the distillation of alcohol, with different acids. (See CHLORIC ETHER; ETHER, SULPHURIC, ETC.)

ETHER, CHLORIC. (See CHLORIC ETHER.)

ETHER, COMPOUND SPIRITS OF. (See HOFFMAN'S ANODYNE.)

ETHER, NITROUS OR NITRIC, OR SWEET SPIRIT OF NITRE, *e'-ther*, is prepared by the action of nitric acid upon alcohol. It is one of our most valuable diuretics, being also stimulant and diaphoretic, and is much used domestically as a remedy in common colds, etc., and to increase the flow of urine. The dose is from $\frac{1}{2}$ to $1\frac{1}{2}$ teaspoonfuls, and given either in water or gruel. When badly made, or too long kept, sweet nitre is apt to contain much acid, which may cause pain at the stomach; the fact may be known by the ether effervescing with carbonate of soda.

ETHER, SULPHURIC, which is more generally known as "æther," is procured by the action of sulphuric acid on alcohol, and by distillation. It is a perfectly colorless limpid fluid, of very light specific gravity, and very volatile: its odor, peculiar and penetrating, is usually called the ætherial odor. It is chiefly employed in medicine as a diffusible stimulant, that is, it acts very rapidly and energetically as a stimulant when taken into the stomach, and on that account is peculiarly valuable in some diseases, such as angina, spasms, etc., attended with sudden violent symptoms; it is also a powerful restorer in the depressed conditions of the system, such as faintness, etc. For the above purposes, sulphuric ether is given in doses of 20 drops in water. A more convenient form, however, is the spirit of sulphuric ether, which consists of one part of the ether mixed with two parts of alcohol; it acts in the same way as sulphuric ether—the dose about 40 or 50 drops in water. The transient effect of ether renders it in many cases less valuable than sal-volatile, or the spirits, such as brandy. Its antispas-

modic power is increased by the addition of opium. When bottles containing this ether are opened at night, its highly inflammable character, even in liquid, but especially in vapor, ought to be borne in mind, and care taken that lighted candles are not too nearly approached. In giving ether, it is not to be forgotten that it floats on the top of the water, and thus, that if a bottle containing three or four doses of medicine, of which ether forms an ingredient, be not shaken before each dose is poured out, more than the proper proportion of ether will be poured out first.

Ether, from its extreme volatility, evaporates rapidly in the ordinary atmosphere, and in doing so occasions a considerable amount of cold; of this, advantage is sometimes taken in medical practice when such an effect is required. The power of ether, when inhaled, to cause anæsthesia, or insensibility to pain, is the characteristic which has excited most attention of late years. Inhalation of ether is a proceeding which should never be tampered with by unprofessional persons. (See CHLORAL, CHLOROFORM.)

EUCALYPTUS GLOBULUS, *yu-ka-lip'-tus glob'-u-lus*, a native Eastern tree now acclimatized in Southern Europe, belonging to the Nat. order *Myrtaceæ*. The leaves are the part used in medicine, and they are said to have extraordinary curative powers in malarial fevers, croup, diphtheria, catarrh, and bronchitis, and also to be valuable as an antiseptic wash in offensive discharges from the vagina and womb, and in ulcers. Dose: of the fluid extract, 15 to 60 drops, three or four times a day.

EUGENIA PIMENTA. (See ALLSPICE.)

EUONYMUS ATROPURPUREUS, *yu-on'-e-mus at-ro-pur-pu'-re-us*, or wahoo, a small bush belonging to the Nat. order *Celastraceæ*. It is found growing in woods and thickets in many parts of the United States. The bark of the root is the part used in medicine. It is tonic, laxative, alterative, diuretic, and expectorant, and has been successfully used in ague, dyspepsia, torpidity of the liver, constipation, dropsy, and pulmonary affections. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 2 to 4 fluid ounces, three or four times a day. (See INFUSION.)

EUPATORIUM PERFOLIATUM, *yu-pa-to'-re-um per-fo-le-a'-tum*, or boneset, a perennial plant belonging to the Nat. order *Asteraceæ*. It abounds in most parts of the United States, and is known by the common names, thoroughwort, crosswort, Indian sage, and feverwort. The tops and the leaves are the parts used medicinally. They are tonic, diaphoretic, and in large doses, emetic and aperient. It contains an active principle called *Eupatorin*, which is a powerful diuretic in doses of from 1 to 2 grains. Boneset is a common and useful remedy in colds,

catarrh, remittent and intermittent fevers, dyspepsia, and general debility. Dose: of the fluid extract, 1 to 2 teaspoonfuls; solid extract, 5 to 20 grains; of the infusion, 2 to 4 fluid ounces, every three or four hours. (See INFUSION.)

EUPATORIUM PURPUREUM, *yu-pa-to'-re-um pur-pu-re'-um*, or queen of the meadow, a perennial plant belonging to the Nat. order *Asteraceæ*. It grows in low places throughout the Northern, Middle, and Western States and Canada. It is known by the common names of gravel root and trumpet weed. The root is the part used, and contains an active principle called *eupurpurin*. Queen of the meadow is bitter, astringent, stimulant and powerfully diuretic. It is useful in all diseases of the urinary organs, dropsy, rheumatism, gout, and female weaknesses and obstructions. It is thought by some to be a solvent of the stone, and esteemed an unfailing remedy in gravelly complaints.

It has also been employed in incontinence of urine, especially in children, with good effects. Dose of the fluid extract, 1 to 3 teaspoonfuls; eupurpurin, 3 to 4 grains; the decoction, 2 to 3 fluid ounces, to be taken three or four times a day. (See DECOCTION.)

EUPHORBIA, *yu-for'-be-a*, the typical genus of the Nat. order *Euphorbiaceæ*, consisting of about three hundred species, many of which have valuable properties. The acrid resin, commonly known as gum euphorbium, is the produce of certain undetermined species. It is a dangerous emetic, cathartic and rubefacient, and produces severe inflammation of the nostrils if those who powder it do not guard themselves from the dust. It is produced from the wounded stems and collected in leather bags.

EUPHORBIA IPECACUANHA, *yu-for'-be-a ip-e-kak-u-an'-a*, or ipecacuanha spurge, a perennial plant, Nat. order *Euphorbiaceæ*. It grows in all parts of the United States. The dried root in doses of 10 to 20 grains is emetic and cathartic, and is used in the same cases as ipecac.

EUPHRASIA OFFICINALIS, *yu-fra'-se-a of-fis-in-a'-lis*, or eye-bright, a plant, belonging to the Nat. order *Scrophulariaceæ*. It is a native of both Europe and America. The leaves are tonic and astringent, and are used in infusion to cure coughs, hoarseness, carache, and headache, arising from catarrh. (See INFUSION.) Four fluid ounces every morning on an empty stomach, continued for some time, is said to have been effectual in curing many cases of epilepsy.

EUSTACHIAN TUBE. (See EAR.)

EUSTACHIAN VALVE, *yu-sta'-ke-an* [after Eustachius, the celebrated anatomist], is a membranous semilunar valve, separating the right auricle of the heart from the inferior vena cava.

EXACERBATION, *egz-as-er-ba'-shun* [Gr. *exacérbo*, I become violent],

denotes an increase of intensity in the symptoms of a disease recurring at intervals.

EXANTHEMA, *ex-an-thé-ma* [Gr. *exantheo*, I effloresce], is a general term denoting an eruption of the skin, or rash, and comprehends measles, scarlet fever, nettle-rash, etc.

EXCISION, *eks-sizh'-un* [Lat. *excisio*; *ex*, from, and *cædo*, to cut]. The cutting out of parts, as tumors, etc., which are not sufficiently large or prominent to be amputated. We do not say the penis was excised, but a tumor was excised.

EXCITANTS, *ek-si'-tants* [Lat. *excito*, to stimulate.] To excite, to stimulate, is either to originate action where no action previously existed, or to give increased energy to powers already in active operation. Excitants or stimulants, therefore, are agents which are capable of producing such effects, and excitement is the effect produced. Excitants may be artificially divided into—

I. *Ordinary excitants*.—The regular unceasing action of which is necessary for the preservation of sound health, both of mind and body.

II. *Extraordinary or occasional excitants*, which produce a certain amount of temporary exalted action of mind or of body, or of both.

III. *Superfluous excitants*, which are generally those comprised in the second division abused.

Under the head of ordinary excitants, we have the following:

A.—PHYSICAL EXCITANTS.—1. Heat; 2. light; 3. electricity, magnetism; 4. atmospheric air; 5. aliment; 6. muscular action, exercise.

B.—MENTAL EXCITANTS.—1. Occupation of the mind with some definite object.

Under the head of extraordinary excitants we have:

A.—PHYSICAL EXCITANTS.—1. Alcoholic excitants; 2. excitant ingesta generally: tea, coffee, spices, drugs, etc.; 3. atmospheric changes.

B.—MIXED EXCITANTS.—1. Sexual stimuli; 2. extra exercises: dancing and athletic sports; 3. traveling and exciting or novel scenes.

C.—MENTAL EXCITANTS.—1. Hope, joy, etc.; 2. love, anger, etc.; 3. social intercourse; 4. argument, politics, etc.; 5. music; 6. eloquence—written or spoken; exciting literature; 7. religion.

For the more particular consideration of the above cited agencies, both as excitants and otherwise, the reader is referred to the various articles in which they are treated of in this work. From these it will be seen that certain ordinary physical stimuli, or excitants, are necessary for the sustenance of human health and life, and that equally important for the preservation of vigor, not only of mind, but of body, is the stimulus resulting from the ordinary but regular action and reaction of the mind of man, originating either in daily intercourse with his fellows,

or in pursuits which continuously engage the mental powers. And further, that the mental and bodily functions are at intervals acted upon by occasional or extraordinary stimuli, which temporarily occasion their exalted and increased action; not only without actual injury, but with positive benefit. And lastly, that these extraordinary stimuli are not liable to lose their power of beneficial stimulation, unless exerted in a disorderly and unrestrained manner. (See HEAT, LIGHT, ELECTRICITY, AIR, ALIMENT, FOOD, EXERCISE, OCCUPATION, MENTAL EXERCISE, STIMULANTS; STIMULANTS, ALCOHOLIC; TEA, COFFEE, TOBACCO, SEXUAL EXCESSES, TRAVELLING, HEALTH RESORTS, RECREATION, PLEASURE, PASSIONS, ETC.)

EXCORIATED NIPPLES. (See NIPPLES.)

EXCORIATION, *eks-ko-re-ai-shun* [Lat. *excorio*, I take off the skin], denotes an abrasion of the skin.

EXCREMENT, *eks'-kre-ment* [Lat. *excerno*, I separate from], is applied to any useless matter ejected from the body, but generally to that which is discharged from the bowels. (See STOOLS.)

EXCRETORY DUCTS, *eks-kre'-to-re* or *eks'-kre-to-re*, is a term applied to the ducts or vessels which convey the secreted fluids from the glands.

EXERCISE, *eks'-er-size* [Lat. *exercitium*]. The constitution of external nature shows that man was destined for an active existence, as, *without labor, scarcely any of the gifts of Providence are to be made available*. In perfect harmony with this character of the material world, he has been furnished with a muscular and mental system, constructed on the principle of being fitted for exertion, and requiring exertion for a healthy existence. Formed as he is, it is not possible for him to abstain from exertion without very hurtful consequences.

With regard to merely bodily exercise, it is to be observed, in the first place, that we have no fewer than four hundred muscles, each designed to serve some particular end in locomotion, or in operating upon external objects. A sound state of body depends very much upon every one of these muscles being brought into action, in proper circumstances, to a suitable extent. There is even a law operating within a certain range, by which each muscle will gain *in strength and soundness* by being brought into a proper degree of activity.

The process of renovation may be said to be always going on in the body, but it does not go on with permanent steadiness unless the muscular system be exercised. Whenever one of the organs is put into exertion, this process becomes active, and the two operations of which it consists maintain a due proportion to each other. A greater flow of blood and of nervous energy is sent to the organ, and this continues as long as

it is kept in activity. When one state of action follows close upon another, the renovating part of the process rather exceeds the waste, and an accretion of new substance, as well as an addition of fresh power, takes place. On the contrary, when an organ is little exercised, the process of renovation goes on languidly, and to a less extent than that of waste, and the parts consequently become flabby, shrunk, and weak. Even the bones are subject to the same laws.

That motion is the tenure and condition of the safety and preservation of the whole of animate and inanimate nature, every portion of organized matter affords incontestible proofs. The solar system affords us a useful lesson of the advantages of activity; the earth and all the planets keep their constant motions—the air is tossed by the winds—the waters are ebbing and flowing; and all this change and motion is, no doubt, for the safety and preservation of the system. By a similar law of physics, the animal machine, to be preserved in a healthy tone, must be employed and kept in a state of activity.

And this primary and indispensable condition extends not only to the machine itself, but also to all its various component parts; no axiom in physiology being more clearly and better established, than that the exercise of the functions of an organ is necessary to the health and well-being of that organ, and that, in proportion to the local injury sustained by the decay of the particular organ, the constitution suffers more or less. Thus if a limb is not used, the muscles shrink, and the bone becomes soft, and, by an analogous law of nature, if the functions of the brain are suffered to remain in a state of inactivity, sottishness is the consequence; and in either case, the organ ceasing to perform its functions, an unpropitious influence is necessarily produced on the general health and vitality of the frame.

But though motion is the tenure and condition of life, exercise should not be used immediately after eating; inattention to this rule has proved fatal to many persons.

Remember, also, that the exercise of any particular limb does little besides improving the strength of that limb; and that, in order to increase our general strength, the whole frame must be brought into exercise. The blacksmith, by wielding his hammer, increases the muscular volume and strength of his right arm only, or, if the rest of his body derives any advantage from his exercise, it is through the general movement which the wielding of a hammer occasions. One whose profession consists in dancing or leaping, for the same reason, chiefly improves the muscles of his legs. The right hands of most persons, by being more frequently employed than the left, become sensibly larger as well as stronger.

A striking illustration of the principle was remarked, years ago, in a personal peculiarity in the inhabitants of Paris.

Owing to the uneven nature of the pavement of the city at that time, the people were obliged to walk in a tripping manner on the front of their feet; a movement which calls the muscles of the calves of the legs into strong exertion. It was accordingly remarked, that a larger proportion of the people of Paris than of other cities, were distinguished by an uncommon bulk in this part of their persons.

In order, then, to maintain in a sound state, the energies which nature has given us, and, still more particularly, to increase their amount, we must exercise them. If we desire to have a strong limb, we must exercise that limb; if we desire that the whole of our frame should be sound and strong, we must exercise the whole of our frame. It is mainly by these means that health and strength are to be preserved and improved. There are rules, however, for the application of these laws of our being.

1. *In order that exercise may truly be advantageous*, the parts must be in a state of sufficient health to endure the exertion. A system weakened by disease or long inaction must be exercised very sparingly, and brought on to greater efforts very gradually; otherwise the usual effects of over-exercise will follow. In no case must exercise be carried beyond what the parts are capable of bearing with ease; otherwise a loss of energy, instead of a gain, will be the consequence.

2. *Exercise, to be efficacious* even in a healthy subject, must be excited, sustained, and directed by that nervous stimulus which gives the muscles the principal part of their strength, and contributes so much to the nutrition of parts in a state of activity. In order to obtain the advantage of this powerful agent, *we must be interested in what we are doing*. A sport that calls up the mental energy, a walk towards a place which we are anxious to reach, or even an exercise which we engage in through a desire of invigorating our health and strength, will prove exceedingly beneficial, when more of actual motion, performed languidly, may be nearly ineffectual.

3. *The waste occasioned by exercise* must be duly replaced by food; as, if there be any deficiency in that important requisite, the blood will soon cease to give that invigoration to the parts upon which increased health and strength depend.

Exercise is usually considered as of two kinds—active and passive. The active consists in walking, running, leaping, riding, fencing, rowing, skating, swimming, dancing, and various exercises, such as those with the poles, ropes, etc., prescribed in gymnastic institutions. The passive consists in carriage riding, sailing, friction, swinging, etc.

Walking is perhaps the readiest mode of taking exercise, and the one most extensively resorted to. If it brought the upper part of the body as thoroughly into exertion as the lower, it would be perfect, for it is gentle and safe with nearly all, except the much debilitated. To render it the more effectual in the upper part of the body, it were well to walk at all times, when convenient, singly, and allow the arms and trunk free play. It is best to walk with a companion, or for some definite object, as the flow of nervous energy will be by these means promoted, and the exercise be rendered, as has already been explained, the more serviceable.

Very long or rapid walks should not be attempted by individuals of sedentary habits, nor by weakly persons. Their frames are totally unprepared for such violent exertion. Every summer, many youths from ignorance do themselves much injury by undertaking pedestrian excursions much beyond their strength. Serious consequences—consumption not unfrequently—follow such ill-advised efforts.

With respect to very rapid walking, Dr. Johnson records some effects from it, of a remarkable nature, as occurring in his own case. “In my own person,” says he, “I had some years ago, a very severe and alarming instance of the bad effects of too great muscular action, occasioned by a habit of walking very fast. After a day and night of unusual fatigue and rapid pedestrian exercise, together with considerable mental anxiety, I was suddenly seized with an intermission of the pulse at irregular periods. (See PULSE.) During each intermission, I felt the heart give a kind of struggle as it were, and strike with great violence against the ribs, accompanied by a peculiar and most distressing sensation in the cardiac region, which I cannot describe.”

These symptoms became aggravated, and lasted eight weeks, “during which time,” he continues, “I used horse-exercise, and kept, when at home, in a horizontal position. At length the heart lost its morbid irritability; and at the end of fourteen or fifteen weeks, I could walk as well as ever.”

Walking is the natural exercise of man, and for the strong and healthy it is the best. Even in the case of the debilitated and of the aged, it should not be neglected: no other mode of exertion diffuses the blood and accelerates its circulation so thoroughly throughout the body. The principal caution required for such persons is not to continue their exercise till exhaustion occurs. Children are not unfrequently injured and weakened in constitution by their daily exercise being a walk, too often carried to fatigue, especially in summer. (See CHILD.) When attainable, a play-ground in which rest and exercise can be taken alternately, and at will, is much preferable to the former. Any unusual

peculiarity in walking, especially in children or young people, should not be permitted to pass unnoticed; it may be the first indication of spine or hip disease.

Running is an exercise which is intermediate between walking and leaping; it consists, in fact of a series of leaps performed in progression, from one foot to another, and the degree of its rapidity bears a constant proportion to the length of the individual and successive leaps. Although this and other gymnastic exercises, such as wrestling, throwing heavy weights, etc., may, when judiciously had recourse to, invigorate the body, yet, from apprehension of the evils and accidents which may be so occasioned, young persons ought not to be permitted to engage extensively in such exercises, except under the care of some one well acquainted with gymnastics.

Fencing is, of all active exercises, that which is the most commendable, inasmuch as it throws open the chest, and at the same time calls into action the muscles both of the upper and lower extremities. Add to this, that it improves very much the carriage of the body; for which reason it may be reckoned a branch of polite education. The salutary effects of the other exercises which are taught in gymnastic institutions, such as exercise with the ropes, pulleys, etc., increasing the strength of the body, cannot be denied.

Riding is generally classed among the passive exercises, but in reality it is one which involves much action of the whole frame, and as such is very useful for health. Pursued solitarily, it has the drawback of being somewhat dull; but, when two or three ride in a company, a sufficient flow of the nervous energy may be obtained.

Rowing is good exercise for the development of the muscles of the arms and chest, but not for the lower extremities.

Swimming is useful and beneficial, but not devoid of danger. Those with weak lungs and diseased heart, should not engage in it.

Quoit-playing, curling, skating, croquet, base-ball, cricket, and tennis are all exercises in which nearly all of the four hundred muscles are brought into active exertion, and therefore, if not unduly indulged in, are highly beneficial.

With regard to extra exercises, such as dancing and athletic sports, which are only engaged in at intervals, it is certain that whatever their beneficial effect upon the functions and health may be, depend quite as much upon the excitement of the mind, as upon that of the body, and every one's experience must tell him how much his favorite exercise owes its renovating influence to the mental stimulation which accompanies it. It must be evident to every person, that dancing, when associated with heated rooms and late hours, is decidedly injurious.

The amount of bodily exercise which should be taken, must vary according to the *habits, strength and general health* of the individual. It was an aphorism of Boerhaave “*that every person should take at least two hours exercise in the day,*” and this may be regarded as a good general rule. (See AIR, BLOOD, CIRCULATION OF THE BLOOD, EXCITANTS, FOOD, GYMNASTICS, MENTAL EXERCISE, MOVEMENT CURE, RECREATION.)

EXERCISE, MENTAL. (See MENTAL EXERCISE.)

EXFOLIATION, *eks-fo-le-a'-shun* [Lat. *exfolio*, I cast the leaf], is the separation of a dead piece of bone from the living.

EXHALATION, *eks-ha-la'-shun* [from Lat. *exhalo*, to exhale or fly off], applied to the body, means an excretion in a state of vapor, such as that from the lungs.

EXHAUSTION, *egz-haust'-yun* [from Lat. *ex*, from, and *haurio*, to draw], is the diminished or almost extinguished power, either of the body generally, or of one or more of its organs, to continue its natural active operations, until it has been recruited by a period of repose. Exhaustion may arise from two principal causes—failure of the nervous power, and deficiency of organized materials fitted to support the requirements of the living body.

If every thought, every exertion of the will upon the body, occasions the consumption of nervous matter, exhaustion of nervous power must in all probability be due to using up of nervous substance. Sooner or later, according to circumstances, every exertion must come to an end, and repose must be taken, that the exhausted brain and nerves may be recruited, and if man acts wisely, he will, if possible, stop exertion, either of mind or body, at the first point of exhaustion. It is true that powerful exercise of the will can and does compel exertion beyond the point at which nature says stop; but the effort is not made with impunity, and the after exhaustion is proportionally increased. No permanent injury probably arises from those occasional exhaustions, either mental or physical, which all have at times to undergo; but no man can habitually go on exhausting his nervous power, whether in the direct service of the mind, in the labors of the body, or in the less excusable requirements of vicious excess, without suffering eventually. The early paralysis and softened brain of the mental, the premature old age of the physical laborer, the wretched decrepitude of the debauchee, are all the results of continued nervous exhaustion. It is not, however, simply the brain and nervous system which suffer, but the other organs of the body, particularly those of nutrition, suffer also, if the supply of nervous power, which ought to sustain their healthy actions is withdrawn to support the exhausting efforts either of mind or muscle. Those, therefore, who can, will do wisely to avoid the cause of these

evils. (See BRAIN, MENTAL EXERCISE, NERVOUS SYSTEM, EXCITANTS, EXERCISE, HEALTH, ETC.)

EXOSTOSIS, *eks-os-to'-sis* [Gr. from *ex*, out of, and *osteon*, a bone], is a term applied to a morbid enlargement or hard tumor of a bone. (See BONE.)

EXPECTATION OF LIFE. (See MORTALITY.)

EXPECTORANTS, *eks-pek'-to-rants* [Lat. *ex*, out of, and *pectus*, the chest], is a term applied to such substances as promote the expulsion of mucus, or other matters, from the air-passages of the throat and chest. The agents that are used with this view are very different, and act in different ways. Vapors are the only agents that can act directly upon the organs affected; those that are taken into the stomach being only capable of acting in an indirect manner. The inhaling of the vapor of warm water, simple or mixed with certain medicinal substances, as vinegar, is very useful in this way. Most medicines which, taken in large doses, act as emetics, are used as expectorants; as squill, ipecacuanha, gum ammoniacum, etc. The expectorant most commonly used in ordinary cases is the syrup of squill. All substances, also, which excite irritation at the upper part of the windpipe, and produce coughing, act as expectorants. The most useful expectorants are acids which astringe and stimulate; ammonia, which stimulates; ammoniac, which stimulates; antimonials, which relax; ipecacuanha, which relaxes; squill, which stimulates; stramonium, or thorn apple; tolu, which stimulates; vapor, either simple or medicated.

In whatever way these medicinal substances exert their action upon the body, the most important practical point is the division into relaxing and stimulant. In the first stages of affection of the bronchi with cough, when there is fever and probably inflammation present, the relaxing expectorants only should be used, either antimony or ipecacuanha; the former may be given with solution of acetate of ammonia, the latter with carbonate of potash; when there is much debility, ammonia combined with camphor is generally employed, and probably squill added. In chronic cough, with difficult expectoration, the same combination may be used, and when there is a relaxed state of the system, with copious expectoration and tendency to perspiration, the acids, either vegetable or mineral, alone or combined with squill, are most serviceable. (See EXPECTORATION.)

EXPECTORATION, *eks-pek-to-ra'-shun*, is the term applied either to the act of coughing up matters from the lungs, or to the matters so coughed up. These vary greatly in consistence and appearance, and consequently are valuable guides in the investigation of disease affecting the chest; indeed, until the physical examination of the chest by the

ear was introduced into practice, the expectorated matters were the most distinctive evidences attainable. Expectoration may be thin and frothy, as it is when the lining membrane of the air-tubes is suffering from irritation or inflammation, or thick and almost solid, as it becomes in the last stages of a cold; it may be ropy, as it often is in old people, or viscid in inflammation of substances of the lungs, when it generally becomes of a dull reddish-brown or rust color; it may consist more or less of purulent matter; or be tuberculous and semi-solid, as in pulmonary consumption; it may be mixed more or less with blood, or pure blood may be expectorated; or it may be what is called the prune juice expectoration from its color, as happens in mortification of the lungs. Generally, expectoration is inodorous, but sometimes it is abominably fœtid, the odor being mostly but not invariably indicative of mortification of the lung itself: other matters, such as bile, etc., are occasionally coughed up. (See EXPECTORANTS.)

EXPIRATION, *eks-pe-ra'shun* [Lat. *expiro*, to breath], is the act of expelling air from the chest after it has been inspired. (See RESPIRATION.)

EXTRACTS, *eks'-trakts* [Lat. *extraho*, to draw out], are medicinal preparations made by separating the active portions of various drugs from the inert ones, this being effected by dissolving out the former, either by water, alcohol or ether, and evaporating the superfluous fluid, until a tolerably firm consistent mass of extract is left. Formerly, heat was used in the evaporation; but as this destroys in some measure the activity of the preparation, the best extracts are now all prepared without any heat whatever and these should always be purchased in preference.

Solid or pilular extracts should represent all the active medicinal principles of the plant from whence they are derived. They may be of the pilular consistence, or by further drying, brought to a powdered state, and in that form present all the active medicinal or positive medicinal constituents of the plant in a very concentrated form.

Fluid extracts vary from the preceding class in degree of concentration. The general principles observed in their preparation are the same, but the process by which the medicinal properties of the plant are exhibited in the fluid form, admits of the preparation being made of any required standard of strength, definite and uniform as regards the amount of active medicinal principles represented by any given quantity, held in solution so as to form clear preparations. The physician is enabled to regulate the dose with greater ease and certainty, and for convenience in calculating doses, they are generally made of the strength of 1 pound of the drug to 1 pint of the fluid—are capable of ready

combination, or of converting into tinctures, syrups and infusions for purposes of further combination.

EXTRAVASATION, *eks-trav-a-sa'-shun*, [from *extra*, without, and *vas*, a vessel], is a term applied to fluids which are out of their proper vessels or receptacles. Thus, an extravasation of blood takes place when an artery or vein is injured, and the blood escapes into the cellular membrane; and an extravasation of urine, when, in consequence of a wound or ulceration, that fluid makes its way into the cellular substance, or among the abdominal viscera. Extravasation is distinguished from exudation, in that, in the latter case, the walls of the vessels remain entire, and the fluids escape by secretion.

EYE, *i* [Ang.-Sax.], the organ of vision, is one of the most wonderful and delicate portions of the human body. It is placed within a bony cavity, termed the orbit, pyramidal in form, with the base anteriorly, and directed a little outwards, and the apex backwards and inwards. The orbit contains the globe of the eye, with numerous muscles, nerves, vessels, fat, etc. The external appendages of the eye are the eyebrows, eyelids, and lachrymal apparatus. The eyebrows, or *supercilia*, are arches of hair covering the supra-orbital ridge of the frontal bone on each side, and extending from near the root of the nose to a little beyond the outer canthus of the eye. The eyelids, or *palpebræ*, are two thin curtains which cover the eye, the one being inferior, and the other superior. Where they join outwardly is called the *external* and inwardly toward the nose, the *internal canthus*. Along the margin of each eyelid is a row of stiff hairs, termed *cilia*, or eyelashes, and which serve to keep external bodies out of the eyes and moderate the influx of light. The lachrymal gland is situated in a small depression of the frontal bone near the external canthus, and from it seven or eight canals issue, called the lachrymal ducts, opening on the internal surface of the upper eyelid. The lachrymal sac is a membranous receptacle, situated in the internal canthus of the eye, which communicates with the nose by means of the nasal duct. The globe, or ball of the eye is composed of membranes or coats, humors, vessels and nerves. The *membrana conjunctiva*, or conjunctiva membrane, is a delicate mucous membrane, lining the internal parts of the eyelids, and covering the whole of the anterior part of the globe of the eye. The outermost coat of the eye is the sclerotic [Gr. *skleros*, hard], so called from its hardness. It is a strong, dense, white, fibrous structure, covering about four-fifths of the ball, and leaving a circular deficiency in front, which is occupied by the cornea. The latter, so named from its horny appearance, is the transparent covering in front of the eye, its edges being slightly overlapped by the sclerotic coat. The choroid membrane is of a black color, and covers the internal surface

of the sclerotic coat with which it is loosely connected. The *retina*, or inner coat of the eye, consists of three layers of membranes. The *iris* [Lat., a rainbow], so called from its variety of color in different individuals, is a thin, flat, circular, membranous curtain, hanging vertically in the aqueous humor and having a central orifice, termed the pupil, for the transmission of light. It divides the space between the cornea and the lens into two chambers, communicating freely with each other through the pupil. The iris is muscular in structure, and has great power of contracting or exposing the pupil, so as to admit more or less light into the interior of the eyeball. In the anterior and posterior chambers is the aqueous humor of the eye. The crystalline lens is a transparent body, situated behind and opposite to the pupil. In form it is double convex, the posterior surface being more convex than the anterior; and it is invested by a transparent membrane, called the *capsule*, which contains also a small quantity of fluid, called the *liquor Morgagni*. The eyeball is moved about in its orbit by six muscles, four of which are straight (*recti*), and two oblique—the superior and inferior. The optic nerves, or second pair, after uniting to form the optic commissure, in which some of the fibres of each nerve cross to the opposite side, separate and enter the optic foramen at the apex of the orbit. They pass through the sclerotic coat on the inner side of and below the axis of the eye, then through the choroid, and, spreading themselves out, are lost or terminate in the retina. (See BLINDNESS, COLOR BLINDNESS; EYE, DISEASES OF THE; VISION.)

EYE, BLACK. (See BRUISES.)

EYEBRIGHT. (See EUPHRASIA OFFICINALIS.)

EYE, DISEASES OF THE. We shall first give an account of *cataract*. It is derived from the Greek verb *katarasso*, I disturb or confound, and is usually defined to be a weakness or interruption of sight produced by opacity of the crystalline lens or its capsule. Sometimes it is applied to every perceptible obstacle to vision situated in the posterior chamber, between the vitreous humor and the uvea. When the disease is situated in the lens or its capsule, it is called a true cataract; but when it consists of opaque matter deposited in front of the lens, it is termed spurious. The latter arises from inflammation, and is to be treated by the usual means employed for allaying inflammation; but no operation can be of use in such a case. Of true cataract three kinds are distinguished: *lenticular*, affecting the lens alone; *capsular*, affecting the capsule; and *capsulo-lenticular*, affecting both lens and capsule. Lenticular cataracts are of two kinds—hard and soft; the former being the more common, especially among elderly persons, and is usually of an amber color, or brownish tint, and generally deep in

proportion to its firmness. Soft cataract prevails in childhood and middle life, and occurs more frequently single than the other. A cataract may be occasioned by active inflammation or external violence, or it may arise from internal or unknown causes. Frequently it is hereditary. The habitual examination of minute objects in a depending position of the head, by which an undue proportion of blood is thrown upon the organ, is said frequently to bring on cataract. It comes on without pain, and the symptom first perceived is a dim haziness of sight, as if a mist or thin film were interposed between the object and the eye. The obscurity is greatest in direct vision, the opacity being almost always first noticed in the centre of the pupil. Hence the sight is better in a weak than in a strong light, because in the former case the pupil is enlarged and admits the passage of the rays through the less opaque edge of the lens. Hence, too, the remarkable effect produced by the application of belladonna to the eye, which has the power of dilating the pupil, and producing a temporary improvement in the sight—a means sometimes had recourse to by quacks, who profess to be able to cure this disease. There is no medicinal remedy that is known to have any effect upon this disease, nor is it at all likely, from the structure of the parts, that any such remedy exists. All palliative measures, therefore, are confined to attention to the general health of the patient, and the removal of any inflammatory symptoms that may exist along with it. The only mode of cure is actual removal by an operation; but so long as one eye remains unaffected, the operation may be delayed. There are three modes of operation employed, each of which has its advocates, and any one of which may be best, according to circumstances. The first is by extraction, or the removal of the lens, and is effected by making an incision through the cornea, as near the iris as possible, and then, by means of a needle, opening the front of the capsule, and gently removing the lens. The second method is the displacement of the lens from the axis of vision by what is called couching [Fr. *coucher*, to lie down] or depression. A needle is inserted through the fore part of the white of the eye, and is brought to bear upon the lens, pressing it back and down into the vitreous humor; and the opaque body being thus removed, sight is restored. The third method by absorption, is effected by puncturing the front of the capsule, and thus admitting the aqueous humor to act upon the cataract; by which means it is absorbed. All these operations require great care and skill in the operator, and the setting in of inflammation has to be specially guarded against.

he membrane, or conjunctiva, which covers the inside of the lids and white of the eye is, from its exposed situation, liable to become

inflamed from various causes. Minute particles of dust, or other substances, getting into the eye, and becoming fixed in the lining of the upper eyelid, between it and the globe, cause an amount of pain and irritation which could scarcely be credited from their size, but which is well accounted for by the accurate opposition of the two surfaces between which they lie. A particle so situated may be discovered, without much difficulty, by a second party examining the sufferer with the head thrown back, whilst he slightly averts the upper lid with the thumb and finger. The slightest speck of foreign matter must be removed, and no better instrument can be employed for the purpose than a piece of not over-stiff writing paper, twisted like a match. Those who work in metals are apt to get minute scales imbedded in the fore part of the ball; they cause much irritation, and are often so extremely difficult to remove, that a surgeon's assistance is required. The effect of these mechanical irritations is to cause inflammation of the conjunctiva; this, however, may often arise, and frequently does, from cold, from disorder of the digestive organs, etc. The first symptom of inflammation is a sensation as if a particle of some kind had lodged in the eye, and if an examination be made, there will be seen, not only an enlargement of any small blood-vessels that may be generally visible on the white of the eye, but a new development of others, the appearance varying from the slightest apparent increase of vascularity, to the most intensely red inflammation; at the same time there is considerable increase in the mucous secretion—not in the tears, as is often supposed—and in bad cases this becomes purulent or mixed with matter. There is, sometimes, considerable swelling of the surface usually distinguished as the white of the eye.

The above is the most superficial form of inflammation to which the eye is subject; if neglected it may extend itself over the cornea and produce permanent blindness. It is distinguishable from the next form or inflammation of the sclerotic coat by the size and winding character of the small blood-vessels, and by their being slightly movable along with the conjunctiva itself when the lids are drawn down. It is important that these distinctive characters should be attended to, in the first place that no error may be committed between this form and a more serious and deep-seated inflammation of the eye, but also that proper treatment may be used. A great error is committed in treating this form of inflammation by means of warm fomentations, etc., applications tending rather to keep up than to cure the disease, which is generally quickly removed by astringents. A drop of laudanum or of Battley's solution in the eye, repeated two or three times, will often cure the disorder, or a lotion of sulphate of zinc, from 1 to 3 grains to 1 ounce of

water, will be found efficient, but the best of all is the solution of nitrate of silver, or lunar caustic, of the strength of 4 grains to 1 ounce of distilled water, as recommended by Dr. Mackenzie. Of this, a single drop may be introduced into the inflamed eye twice or three times in the twenty-four hours. The eye, of course, should be exercised as little as possible, and if the bowels are confined, or the stomach disordered, a few doses of the blue pill and colocynth will be found useful. If the disease is obstinate, a blister to the back of the neck may be applied with advantage.

The disease which has just been treated of, is a comparatively mild disorder, but under certain circumstances it becomes much more virulent; the secretion of matter is very great, and acquires the power of propagating the disease by contagion from one person to another. The well-known Egyptian ophthalmia is of this nature, and is carried from individual to individual by the flies, which, according to travelers, seem to have acquired an instinctive tendency to fly towards the eyes in that country. Newly-born and young infants frequently suffer from a severe form of this ophthalmia, which often shows itself within three days after birth. The inflammation is intense, and the matter often accumulates largely between the lids, gushing out when they are separated; in scrofulous children especially the affection is often obstinate. The nitrate of silver solution is the best application, and small doses of quinine the best internal remedy. Syringing between the lids with a solution of alum—4 grains to 1 ounce of water, six or eight times a day, is also recommended; a little lard should be used on the edges to prevent sticking together.

In inflammation of the sclerotic or outer coat of the ball itself, there is more actual pain, it is more deeply seated, the redness seen on the white of the eye is more of a pink hue than in the conjunctival affection, the vessels appear much smaller and straighter, radiate as it were from the cornea, and are not movable: the affection is, moreover, generally a more serious one than the other. The more interior structures of the eye may also become inflamed, and especially the iris; in all these cases of deep inflammation of the eye, the constitution is much affected, there is shivering, followed by thirst, fever, etc.; the pain in the organ itself is often most severe, and extends to the forehead; light cannot be borne. If the iris is the part affected, its color is changed, and often becomes of a dirty brick red; the pupil at the same time is irregular.

In these, and indeed in all affections of so precious an organ as the eye, proper medical treatment should be taken advantage of. In some eye affections the lids are apt to become glued together during sleep by

the secretion; this is best prevented by smearing the edges with some simple oil or ointment. The edges of the lids, likewise, are apt to become affected with a succession of small pustules, or abscesses, which often continue to form in spite of treatment, depending probably on some disorder of the digestive organs, which should be attended to; local treatment seems to do but little for their amendment.

The lachrymal sac, or some of its ducts, are apt to become the seat of inflammation and to be blocked up in consequence; the tears not escaping by their natural outlet run over the cheek, causing painful excoriation, and the corresponding nostril is dry. The disorder is not only troublesome to bear, but often to manage, and should be seen by a surgeon.

A sty in the eye, or rather eyelid, is a small abscess, and often gives great pain; it is best treated by fomentations. (See FOMENTATION.)

Blows on the eye frequently give rise to effusion of blood beneath the conjunctiva, which occasions the white of the eye to become of a deep, almost black, red color, and to present a very alarming appearance. The state of matters may be distinguished from inflammation by the uniformity of the redness, and by the absence of those characteristic symptoms enumerated above. (See BRUISES AND CONTUSIONS.) The eyes frequently assume an injected or blood-shot appearance in affections of the brain.

Disordered vision may be the result of causes, such as cataract, etc., which interfere with the transmission of the rays of light; it may also arise from disorder of the digestive organs, and not unfrequently from incipient disease of the brain. Persons who become suddenly and unaccountably affected with disordered vision, should manage themselves as directed in article AMAUROSIS, and get medical advice as speedily as possible.

Preventive treatment.—The eye is such an important organ, and the eyesight so necessary to our happiness, that no one can be too careful in avoiding all causes of disease, and preserving as long as possible the faculty of seeing. In accomplishing this purpose there are certain things which we must avoid doing, and other things which we must be careful to do.

The eyes should never be exposed suddenly to a very bright light.

They should never be rubbed when irritable, but gently bathed with a wet cloth.

They should never be exposed, while working, to a steady glare of light. The desk, or the bench should not be in front of a large window, exposed to the direct rays of the sun.

In reading, avoid a position in which a bright light falls directly on

the page. If possible, let the light strike the book at an angle of forty-five degrees.

Never attempt to read in twilight; in a railway car, or carriage, or any time when there is much shaking or insufficient light.

If necessary to work or read, or write, in a very bright light, always use a shade for the eye.

Avoid as much as possible exposing the eye to high winds or a dusty atmosphere.

Never attempt the dangerous practice of looking for a length of time at bright polished objects.

Among the things to be done may be mentioned the following:

Bathe the eyes every morning and evening with pure cold water and wipe them dry with a soft towel.

Give the eyes rest the moment they begin to show symptoms of being overtaxed.

Do not, from motives of false pride, unduly postpone the use of spectacles, and be exceedingly careful in purchasing, to secure the number exactly fitted to the eye.

If the eye is suffering, consult only a first-class oculist, and avoid making use of the thousand and one cures recommended by sympathizing friends. (?)

We would warn our readers to shun every appearance of quackery, and particularly that numerous class of traveling impostors who assume the name of oculist, and in all cases of serious trouble in the eye, to consult your physician, who, if he cannot grant relief, will refer you to a medical man who has given special educated attention to ocular surgery. (See EYE, AMAUROSIS, BLINDNESS, COLOR BLINDNESS, OPHTHALMIA, VISION, ETC.)

EYE, FOREIGN BODIES IN THE. (See EYE, DISEASES OF THE.)

F.

FABA, *fa'ba* [from Gr. *phago*, I eat], the bean, a genus of the Nat. order *Leguminosæ*. From the species *F. vulgaris*, all the cultivated varieties of the broad bean have been produced. The garden beans form an important article of human food, and are very nutritious. (See BEAN.)

FACE, *fase* [Lat. *facies*] is the lower and anterior part of the head. It comprises the organs of the three senses—sight, taste, and smell, the organs of mastication, and the opening to the respiratory and digestive canals. The bones of the face are usually divided into those of the upper

and lower jaw. The former comprises fifteen bones, besides the teeth, the latter consists of only one bone besides the teeth. The muscles of the face are numerous, and to these we are indebted for that infinite variety of expression that characterizes the human countenance. (See ANATOMY, COMPLEXION, COUNTENANCE, CAPUT.)

FACE-ACHE. (See HEMICRANIA OR BROW AGUE, NEURALGIA.)

FACIAL ANGLE. (See ANGLE, FACIAL.)

FÆCES, *fê-seez* [Lat., plural of *fæx*, dregs], the excrement from the bowels. (See STOOLS.)

FAGOPYRUM, *fa-go'-pe-rum*, a species of the genus *Polygonum*, yielding the common buckwheat, so largely used in some parts of the country as an article of food. The continuous use of buckwheat cakes almost invariably gives rise to an intolerable itching of the skin not accompanied with any eruption, and not very amenable to treatment. The only specific is to stop, for a time, at least, the use of this substance as an article of food. Pancakes of all kinds are unsuitable for those of weak digestion. (See FOOD.)

FAHRENHEIT, *fû-ren-hite'*, the German inventor of the thermometer which bears his name.

FAINTING, OR SYNCOPE, *faint'-ing*, *sing'-ko-pe* [Irish, *faine*, a weakening; Gr., from *sun*, with, and *kopto*, I fall down], is a state of partial, or of total unconsciousness, in consequence of diminished circulation of blood through the brain, the result of depression of the heart's action.

A person about to faint becomes affected with ringing in the ears, the sight fails, the ideas are confused, and the mind incapable of exertion, the countenance becomes deadly pale, cold sweat breaks out over the forehead, the power over the limbs either becomes very unsteady or fails altogether, and if actual fainting happens, the individual sinks down, and is really in a condition which much resembles death, and might pass into death.

As said above, the direct cause of fainting is diminished circulation of blood through the brain; it must be obvious, that in the endeavors to restore a person who has fainted, this condition must be altered as quickly as possible; and for this purpose, the individual should be laid quite flat down, the head on a level with the body, so that the feebly acting heart may not have to propel the blood upward, but horizontally. The neck and chest should be exposed, fresh air admitted freely, a little water sprinkled on the face, and stimulant vapors, such as ammonia, held to the nostrils at intervals. Sal-volatile or a little spirit, or wine and water may be given at the same time. Friction over the region of the heart with the hand or with a stiff brush is useful in stimulating the

action of the flagging organ, and ought at once to be vigorously employed, in conjunction with other means, when there is any difficulty in restoring animation. It must be remembered that the first period of some apoplectic or paralytic seizures is one of faintness; and also, that where the affection is the consequence of loss of blood, its continuance to some extent may be the safety of the patient. In either case the use of stimulants must be a very cautious one. (See APOPLEXY, HEMORRHAGE, ETC.)

FALLING OF THE BOWEL. (See PROLAPSUS ANI.)

FALLING OF THE WOMB. (See WOMB.)

FALLING SICKNESS. (See EPILEPSY.)

FALLOPIAN TUBES, *fal-lo'-pe-an*, so called after the anatomist by whom they were first described, are slender tortuous canals, about four inches in length, proceeding from the upper angles of the uterus, and terminating in the ovaries, to which they serve as ducts. (See WOMB.)

FALLS. (See BRUISES, CONCUSSION, SHOCK, DISLOCATIONS, FRACTURES, ACCIDENTS, ETC.)

FALSE BITTER-SWEET. (See CELASTRUS SCANDENS.)

FALSE CONCEPTIONS. (See MOLES.)

FALSE CROUP. (See CROUP, FALSE.)

FALSE PREGNANCY. (See PREGNANCY.)

FALSE WINTERGREEN. (See PYROLA.)

FAMILY MEDICINES. (See HOUSEHOLD MEDICINES.)

FAMINE. (See STARVATION.)

FAMINE FEVER, *fam'-in*, a form of typhus. (See TYPHUS FEVER.)

FARADIZATION. (See ELECTRICITY.)

FARCY. (See GLANDERS.)

FASCIA, *fash'-e-a* [Lat. *fascis*, a bundle], is a term applied to certain membranous expansions existing in various regions of the body, and forming coverings to particular parts. They are composed either of cellular tissue more or less condensed, or of fibrous tissue.

FASTING. (See ABSTINENCE, STARVATION; RULE, LIVING BY; DIET.)

FAT, *fat* [Ang.-Sax. *fætt*, *fett*], is a compound of three principles, stearine, margarine, and oleine, which at the temperature of the living animal body are fluid; but when, as after death, the temperature falls, the two former become solid. The fluid fat is contained in simple cells of a spherical form, which prevent its being diffused, or falling to the most dependent portions of the body. The uses of fat are evidently, partly to form a soft pad or cushion for various parts; but there can be no question, that it also constitutes a store of fuel, or combustible material, for aiding the purposes of animal heat. This is palpable in the

case of hibernating animals, which are usually very fat before taking to their winter sleep, but the reverse on waking from it. A certain amount of fat, as a constituent element of the body, is requisite for health, and desirable for appearance; but its accumulation may become so great as to amount to disease, and may become an impediment to the performance of the duties of life as well as a cause of its shortened duration. (See CORPULENCE, FUCUS VESICULOSUS, ADIPOSE TISSUE, STARCH, ETC

FATIGUE. (See EXHAUSTION.)

FATTY DEGENERATION OF THE HEART. (See HEART, DISEASES OF THE.)

FAUCES, *faw'-seez* [Lat. plural of *fauz*], is the gorge, or back part of the mouth, terminated by the gullet.

FAVUS, *fa'-vus* [Lat., honey-comb], a peculiar skin disease, generally developed on the head, but occasionally elsewhere, and remarkable from the yellow-capped scabs, being the site of development of a minute fungus. Medical advice should always be sought in this disease. (See SCALD HEAD; SKIN, DISEASES OF THE.)

FEAR, *feer*, is one of those depressing agents which always acts unfavorably in cases of confirmed disease, and lays the person open to the attacks especially of contagious or epidemic maladies. Sudden fear has sometimes acted beneficially, and paralytics have been known to recover the use of their limbs in their efforts under a paroxysm of terror; more generally, however, its operation is the reverse, and many cases of epilepsy, mania, heart disease, etc., date from fright. In children, particularly of a nervous temperament, the influence of fear, either in jest or earnest, is most sedulously to be avoided. Above all things, care should be taken, that circumstances in which children may be placed accidentally, or individuals with whom they may necessarily have to come in contact, are not made sources of terror. This is too often practised, and threats of what the doctor will do, so terrify a child, that when visited in illness, fright quickens the pulse, the tongue will not be shown, and the sounds of the chest are so obscured by sobs, that it is next to impossible to arrive at an accurate judgment of the case. Further, if a child has been systematically frightened about the dark, etc., it may, if accidentally placed in it, suffer serious injury from fright. (See PASSIONS.)

FEBRIFUGE, *feb'-re-fu-je* [Lat. *febris*, a fever, and *fugo*, I drive away], is a general term applied to medicines which are believed to possess the power of curing or alleviating fever, more particularly to such as are used against ague, as quinine.

FEBRILE, *fe'-bril*, or *feb'-ril* [Lat. *febrilis*; *febris*, fever], relating to, or indicating fever. (See FEVER.)

FECULA. (See STARCH.)

FEET. (See FOOT, DEFORMITY, CLUB-FOOT.)

FEET, BLISTERED. (See BLISTERED HANDS OR FEET.)

FEET, COLD. (See COLD FEET, CLOTHING, COLD, ETC.)

FEET, OFFENSIVE SWEATING OF. (See ALUM, CARBOLIC ACID, CLAY.)

FEET, WET. (See COLD, CLOTHING, DAMP.)

FEIGNED DISEASES, *fānd* [Fr. *feindre*, to feign], are diseases which certain persons pretend to be afflicted with, in order to avoid some duty, or in the hope of gain. The soldier to escape the performance of duty, the mendicant to impose on public or private beneficence, the criminal, to avoid the infliction of punishment, most frequently have recourse to these pretences. They are sometimes, however, had recourse to, when no adequate motive can be assigned, and are difficult of detection in proportion to the skill with which they are simulated. The diseases most commonly feigned are epilepsy, catalepsy, convulsions, blindness, deafness, palsy, insanity, indigestion, neuralgia, rheumatism, palpitation of the heart, ulcers, etc. Vomiting, spitting of blood, diarrhœa, and ophthalmia, are also often simulated. It frequently demands very considerable ingenuity on the part of the physician to detect the knavery of such persons.

FEL BOVINUM PURIFICATUM, OR PURIFIED OX BILE. (See OX-GALL.)

FELON. (See WHITLOW.)

FEMORAL ARTERY, *fem'-o-rāl* [Lat. *femur*, the thigh], the great artery of the thigh. (See ARTERY.)

FEMUR, *fe'-mur* [Lat.], the thigh bone. (See THIGH, ANATOMY.)

FENCING. (See EXERCISE.)

FENNEL. (See FENICULUM.)

FERMENTATION, *fer-men-ta'-shun* [Lat. *fermentatio*], in Chemistry may be defined as a decomposition undergone by organic matter, through the influence of a small portion of organized matter which is in itself in an active state of alteration. In all cases of fermentation certain extraneous conditions are necessary; for instance, the presence of water and a moderately warm temperature. There are three principal kinds of fermentation—alcoholic or vinous, lactic or butyric, and viscous fermentation. When the juices of plants or fruits containing sugar are kept at a temperature of seventy degrees for several hours, the liquor becomes turbid, and small bubbles of gas make their appearance; in common language, it has begun to work or ferment. (See ALCOHOL, VINEGAR, YEAST, CARBONIC ACID, FERMENTED LIQUORS.)

FERMENTED LIQUORS, *fer-ment'-ed lik'-urz*, that is, beverages

which have undergone the process of alcoholic fermentation, may almost be considered a natural product of warm climates, from the readiness with which vegetable juices take on the process in these situations. The pure juice of the grape, if left to itself in a suitable temperature, will ferment in a few hours, and the palm-juice of Africa and other tropical countries, and the pulque of Mexico, are instances of the same thing. In the present day, the principal fermented liquors in use are—1. Grape wines; 2. domestic or home-made wines, which are for the most part rendered fermentable by the addition of sugars; 3. liquor made from the fermented juice of the apple or pear; 4. malt liquors from various grains, principally barley. (See WINE, ALE, PORTER; STIMULANTS, ALCOHOLIC; FERMENTATION.)

FERMENTING, OR YEAST POULTICE. (See POULTICE.)

FERN GALE. (See COMPTONIA ASPLENIFOLIA.)

FERN, MALE. (See ASPIDIUM.)

FERN, SWEET. (See COMPTONIA ASPLENIFOLIA.)

FERRATED WINES, *fer-rate'-ed*, wines containing some preparation of iron.

FERRUM. (See IRON.)

FETID BREATH. (See BREATH.)

FETID PERSPIRATION OF THE FEET AND ARM-PITS. (See ALUM, CARBOLIC ACID, CLAY.)

FETOR, *fe'-tor* [Lat. *fætor*], is a bad odor of any kind. In many cases it is the result of the process of putrefactive decomposition or fermentation, and may be developed either on the external or internal parts of the body. The use of chlorine, or of chloric ether or carbolic acid in various ways, is the best corrective. The mercurial fetor is a peculiar odor, always acquired by the breath when the constitution is sensibly affected with mercury. (See CHLORINE, DISINFECTANTS, MERCURY, CARBOLIC ACID.)

FEVER, *fe'-vur* [Lat. *febris*, from *ferveo*, I am hot], is that condition of the body in which the pulse is quickened, the skin hotter than natural, thirst present, and the functions generally disordered. This feverish state of the system may arise from, and be the concomitant of various local and other affections, but it may also constitute a disease in itself, and it is to it in this light that the present article applies.

Fever, properly so called, naturally divides itself into intermittent fever or ague, eruptive fever, such as small-pox or measles, hectic fever, and remittent and common continued fever. It is with the last only that we have to do at present, the others will be considered under their own heads.

Remittent fever may be regarded as an aggravated form of intermittent

fever or ague; it has the regular succession of hot, cold and sweating stages, but the interval between the paroxysms is not characterized by the return to comparative health as it is in the latter. Through most tropical countries, the principal type of fever is the remittent; but the complications of the fever, and consequently its management, vary according to locality. (See REMITTENT FEVER.)

Common continued fever is an affection of the whole system; as described by a medical author of eminence, "It affects the head, the trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibres, and the membranes; it affects the body and likewise the mind." By medical men this serious disease is subdivided into different varieties and types; but it would serve no good purpose to enter into these here. The management of a disease so gravely important as fever, can never be legitimately undertaken by unprofessional persons if medical assistance is procurable, and as a provision in circumstances when this is absent, the less complicated, both the account of the disease and of its treatment, the more likely is it to be managed with advantage domestically. The first symptoms of incipient fever are usually displayed through the nervous system. The individual feels an unaccountable languor, and complains of headache and shivering, cannot exert the powers either in the duties or pleasures of life, is easily tired, sleep is disturbed, the appetite is impaired, the skin looks dusky and the eyes heavy, the pulse quickens, and at length the feeling of general illness drives the patient to bed. The attack, however, may commence much more suddenly, a shivering, or, as the people in many places call it, an "ague fit," may be the first symptom; or severe headache, or vomiting, or fainting, or even convulsion may be the first symptom of the impending malady. When fever is fairly established, the pulse ranges above one hundred, the tongue is furred, probably brownish and dry, sleep is disturbed or supplanted by delirium, the muscular power is diminished and diminishing, and the mind indifferent to passing circumstances; dark incrustations collect about the teeth, the patient sinking down in bed, and perhaps passing the natural evacuations unconsciously, displays the most evident signs of debility. This condition may increase till it terminates in death, or tends towards recovery, either by some marked crisis, such as profuse perspiration, or by an almost imperceptible amendment. Tranquil sleep, improved aspect of the countenance, the skin cooler and with more tendency to moisture, the tongue cleaning at the edges, and a natural desire for food, all give sign that the disease is passing away; on the other hand, if a fatal issue is approaching, the general weakness increases, the patient slips down in the bed in conse-

quence, and lies in a state of dreamy muttering, there is convulsive starting of the fingers or other parts of the body, picking at the bed-clothes, the insensibility to external impressions increases, and probably stupor closes life.

Such are the general features of fever, whether simply continued, or when it runs on to the more serious forms of typhoid, or low, or nervous, or malignant fever. There are many other indications which occur, but which it would serve no good purpose to detail here ; all that is required is, that the disease should be recognizable, so that its general management may be properly and intelligently conducted, when it falls to the lot of an unprofessional person to have the direction.

In the first place it must be remembered, that for continued fever we have no cure, that is, we have no medicine which we can give with the tolerable certainty of removing the disease, as quinine removes ague; it must be vanquished by the powers of the constitution, by the tendency to health (see DISEASE), and our endeavor must be to place these powers in the most favorable condition possible for the struggle, and, where they appear to be insufficient, assist. Sometimes the constitutional power will throw off fever at the very onset. A person attacked with fever ought to be placed in as roomy and well-aired a situation as possible, better even in a barn than in a close or crowded room; the greatest cleanliness as regards everything around must be observed, and perfect quietude; if thirst is present, it should be liberally indulged with simple diluents, such as barley-water, rice-water, or lemonade; if nourishment is taken, it should be given in moderate quantities, and consist principally of milk and farinaceous preparations; grapes, oranges, and ripe fruits, if they do not create flatulence or diarrhœa, are allowable. If the skin is hot and dry, it should be sponged daily, or oftener, with water, and, indeed, this practice is beneficial, more or less, in most cases. By these simple means of management, almost without medicine, beyond some gentle aperient at intervals to keep the bowels perfectly free of their necessarily depraved contents, many a case of fever may be well conducted to a favorable issue, with much more certainty than under a more meddlesome treatment, care being taken when signs of amendment show themselves, that there is not too great hurry in giving or permitting strong nourishment.

In more serious forms of fever, the same principle of treatment must be kept in view, but more urgent symptoms may call for more active interference; delirium may require the treatment pointed out under the individual articles devoted to the subjects, TYPHOID FEVER, TYPHUS FEVER, and the various diseases in which delirium occurs; difficulty of breathing and cough may render a blister on the chest desirable, or tenderness of the

bowels on pressure, particularly in the right iliac region (see ABDOMEN) may call for the application of half a dozen leeches. Diarrhœa may require to be checked (see DIARRHŒA), or constipation removed by gentle aperients; castor-oil or rhubarb or senna will generally be found safest and best, or by injections. Sleeplessness at night, with convulsive starting of the fingers, may require opium, or the general sinking of the powers, the pulse becoming feeble and easily extinguished, may call for the careful and measured administration of wine or brandy, or of camphor in milk (see CAMPHOR), with strong meat broth, or gravy, in frequently repeated small quantities. At this time care must be taken to observe whether urine is passed; if there seems to be difficulty, a bag of hot bran on the lower part of the body will possibly make it easier; if it dribbles away, means should be taken to protect the back and hips of the patient from being wetted with it. This may be done in various ways, either by water-proof material, or by constant renewal of dry cloths; it is much better effected, however, by bags of bran so placed as to absorb the urine as it comes away. If with every quart of bran, four ounces of the diluted sulphuric acid be mixed, it will neutralize the ammoniacal emanations which so quickly arise wherever urine collects. Very recently, bags filled with the powder of peat charcoal have been recommended for the same purpose, and where this article can be procured, it will probably be superior to any other.

All patients who lie long in fever become liable to bed-sores, or ulcerations on the prominent parts of the body, which are subject to pressure as they lie; these are, especially, the back and hips, points of the shoulder blades, back of the head, tips of the ears, etc. When these ulcerations form, they not only add materially to the suffering of the patient, but may become the cause of a fatal termination to a case that might otherwise have recovered. They should, if possible, be prevented. The parts named above should be frequently examined, and on the slightest appearance of redness, the skin at the spot should be rubbed with spirit, brandy, or a solution of camphor in spirit. When the skin has actually broken, it may be dressed with simple spermaceti ointment spread on linen; lead plaster spread on soft leather is often useful, or the white of egg beat up with alum. (See ALUM.) Both as a preventive and as a remedy after the sores have formed, the parts should be relieved from pressure as much as possible by various arrangements of cushions, etc., the elastic ones made for the purpose being the most suitable. (See BED-SORES.)

The simplest, and in every respect, the best method, of treating troublesome bed-sores, is to smear a little simple ointment, or fresh lard over one of the india-rubber water-beds or cushions, and lay the sore upon

it, without the intervention of any kind of dressing or non-elastic material whatever. Care must be taken to keep the sore and the pillow quite clean, and the lard quite fresh.

Such are the general principles on which a case of fever is to be managed; by attention to them an unprofessional person will be much more likely to do good than by meddling interference. Attention to the ventilation of the room, to the perfect cleanliness of the patient and of everything around; a free supply of simple drinks and care that the bowels are duly, but not forcibly relieved, of their always depraved contents, ought to constitute the chief resources of the domestic management of fever.

Again it is repeated, fever is not a disease to be cured, out to be guided to a safe termination. If many of the symptoms which arise, or may arise, in fever, or if minutiae of treatment are here omitted, it is because either their enumeration would have been useless, or that a judicious reference to various parts of this work will furnish adequate guidance. As regards the causes of the fever, first, CONTAGION, has been fully treated of in its special article, and the rest are so fully pointed out in the various sanitary articles, such as AIR and VENTILATION, BED-ROOM, DISINFECTANTS, DRAINAGE, etc., that it would involve needless repetition to go over them here. They may be summed up: Predisposing—whatever lowers, either temporarily or permanently, the standard of the general health; and direct—contagion and the products of animal or vegetable decomposition.

Fever in children in this country is more generally of a remittent character than it is in adults.

The article cannot be closed without reference to the employment of fresh yeast in cases of fever, particularly of a low, malignant or putrid tendency, in which it is most useful. It is given in tablespoonful doses, repeated every three or four hours. (See REMITTENT FEVER, TYPHUS FEVER, TYPHOID FEVER, SCARLET FEVER, AGUE, BED-ROOM, CONTAGION, DELIRIUM, BED-SORES, CARBON, COLD, DISINFECTANTS, DISEASE, DEBILITY, CONVALESCENCE, COOKERY FOR THE SICK, ETC.)

FEVER AND AGUE. (See AGUE.)

FEVER-BUSH. (See BENZOIN ODORIFERUM.)

FEVER, CAMP, a form of typhus. (See TYPHUS FEVER.)

FEVER, CONTINUED. (See FEVER.)

FEVERFEW. (See PYRETHRUM PARTHENIUM.)

FEVER POWDER. (See ANTIMONIAL POWDER.)

FEVER-ROOT. (See TRIOSTEUM PERFOLIATUM.)

FEVER, SCARLET. (See SCARLET FEVER.)

FEVER, TYPHOID. (See TYPHOID FEVER.)

FEVER, TYPHUS. (See TYPHUS FEVER.)

FEVERWEED. (See GERARDIA.)

FEVERWORT. (See EUPATORIUM PERFOLIATUM.)

FIBRINE, *fī'-brīn* [from Lat. *fibra*, a thread], one of the constituents of the blood, and of muscular tissue. It is contained in blood in a liquid state, in the proportion of 2·5 parts to 1,000, and coagulates in a very short time after the exposure of blood to the air. It constitutes a large portion of muscle, arranged in bundles of fibres; whence its name.

FIBROUS TISSUE. (See MUSCLE.)

FIBULA, *fīb'-u-lā*, the small bone of the leg. (See LEG, ANATOMY.)

FICUS, *fī'-kus* [Lat., a fig], in Botany, a genus of the Nat. order *Moraceæ*, consisting of trees and shrubs abounding in a milky juice. The most important species is *F. Carica*, the fig tree, supposed to be a native of Asia Minor, but now found in all the southern countries in Europe. The fruit is eaten green, and dried as a luxury in some countries, and as a common article of food in others. The finest dried figs are imported from Turkey. In consequence of their nutritive, emollient, demulcent, and laxative properties, they are frequently employed in medicine. When heated and split open, they form a useful application in promoting the suppuration of tumors, or boils, particularly in the mouth or gums. The fig contains a wholesome and somewhat aperient pulp, but the thick rough rind is indigestible and should not be eaten.

FIGS. (See FICUS.)

FILARIA, *fe-la'-re-ā* [Lat. *filum*, a thread], a genus of parasitic entozoa, common to large and small animals, and infesting even certain of the mollusca. Of this family the most inimical to the comfort of man is the Guinea-worm (*Filaria medinensis*), which, in hot climates, insinuates itself under the skin of the lower members, causing excruciating pain. It has a slender and thread-like body, and sometimes attains a length of six feet. It is met only in certain portions of the torrid and temperate zones in Africa and Asia, and is especially frequent on the African coast. It is extracted by tying a thread round the head when it protrudes, and rolling it round a small stick, drawing the worm gradually out day by day, and rolling it round the stick till it is extracted, great care being necessary not to break it in the process.

FILBERTS, *fīl'-burts*, are liable to the objection to nuts generally, and are difficult of digestion.

FILTER, *fīl'-tur* [Fr. *filtre*], an apparatus by which fluids are separated from any solid matter held in suspension. They are of various kinds, and for different purposes, being used in straining chemical liquids; in purifying water for household use; or on shipboard for changing

salt water into fresh. Household filters for purifying water, either for drinking or culinary purposes, are made in various forms. Any common vessel with a hole below, such as a flower pot, may be used. Its lower portion is to be filled with coarse pebbles, over which is placed a layer of finer ones, and on these a layer of clean coarse sand; on the top of this, a piece of burnt clay, perforated with small holes, should be put, and on this a stratum, three or four inches thick, of well-burnt pounded charcoal. A filter thus formed will last a long time, and not only separates solid impurities, but purifies the water, by means of the charcoal, from the putrescent and other noxious substances held in solution, which cannot be separated by ordinary filtration. (See SANITARY SCIENCE, WATER.)

FINGERS, *fing'-gers* [Ang.-Sax.], from their constant exposure, are liable to many accidents and diseases; fractures, dislocations, whitlow, separation of the nail, all which are treated of under their respective articles; there is, however, one mishap which does not fall under any particular head.

A ring which cannot be removed.—When this occurs, the use of cold to the finger and hand; the hand and arm being elevated at the same time, may cause sufficient shrinking to permit of the removal; if this does not succeed, the following may: a piece of fine packthread, or linen thread, is to be wrapped evenly and firmly round the finger, from the tip as far as the ring, through which its end is to be inserted, which being done, the packthread must be gradually unwound by means of the end thus placed. If this process does not succeed, the ring should be filed off. It cannot remain without risk. (See ANATOMY, FRACTURES, DISLOCATIONS)

FIRE-DAMP. (See COAL-GAS.)

FIRE-PLACE. (See CHIMNEY, STOVES.)

FIRE, ST. ANTHONY'S. (See ERYSIPELAS.)

FIREWEED. (See ERECHTHITES HERACIFOLIUS.)

FISH, *fish*, [Ang.-Sax. *fisc*], as an article of diet, generally is wholesome; it is neither so nutritive nor so heating as animal food, and on these accounts is often to be permitted when the latter is not.

Fish are classed as fresh water, salt water, and shell fish. Dr. Paris remarks, "Turbot, cod, whiting, haddock, flounder, and sole, are the least heating of the more nutritive species; and the flakiness of the fish, and its opaque appearance after being cooked, may be considered as true indications of its goodness, for when the muscles remain semi-transparent and bluish, after sufficient boiling, we may reject it as inferior in value and not in season. When fish is in high perfection, there is also a layer of white curdy matter resembling coagulated albumen, interposed

between its flakes. The whiting—"the chicken of the sea"—is well adapted for weak stomachs, on account of the little viscosity which it possesses; it is at the same time tender, white and delicate, and conveys sufficient nutriment, with but little stimulus to the system. The haddock is firmer in texture. Cod is not quite so digestible as the two former, but it is nutritious. Turbot is wholesome, without lobster sauce. Sole is tender, and yet sufficiently firm; it is, therefore, easy of digestion, and affords proper nutriment to delicate stomachs. Salmon is very nutritious, but, being one of the oily fishes, is less digestible than many others; vinegar in some degree corrects the fault. Eels are always indigestible." Firmness of texture, whiteness of muscle, and the absence of oiliness and viscosity, are the circumstances which render fish acceptable to weak stomachs. Shell fish may, without exception, be considered as indigestible. Oysters eaten raw are undoubtedly nutritive, but by some they are not easily digested. Many persons are liable to cutaneous eruptions after the use of some descriptions of shell fish, and some suffer from diarrhœa.

In those places, as the coast of Norway and Sweden, where a diet of fish alone is habitual, the people are very liable to chronic cutaneous disease.

The most wholesome method of cooking fish, is by boiling; frying is not suitable for the invalid. It is well known that certain species of fish are poison at all times, others appear to be so only occasionally, and under peculiar circumstances. The oily fishes also, such as salmon, herring, etc., when too long kept, have also given rise to symptoms of irritant poisoning. (See FOOD, ETC.)

FISTULA, *fist'u-lâ* [Lat., a pipe or reed], is a long and sinuous ulcer, having a narrow opening, sometimes leading to a larger cavity, and which has no disposition to heal. The most common form of this disease is the *fistula in ano*, the sinus extending into the cellular substances about the anus, or into the rectum itself. This disease is commonly attended with intense pain, especially when passing the feces, and there is an irregular discharge of purulent matter, which is sometimes mixed with blood. Sometimes a cure will be effected by attending to the general health, and the injection of some astringent lotion, as solution of sulphate of zinc (40 grains to 1 pint of water.) Failing this, it will be necessary to make a complete division with the knife of the whole of the parts between the fistula and the bowel, and the edges of the wound kept apart by lint, in order to allow the cavity to fill up by granulation. *Fistula lacrymalis* is a disease of the lachrymal sac, caused by an obstruction to the flow of tears along the nasal duct. The symptoms of this disease are a watering of the eye, with a dryness of the

corresponding nostril, a distension of the lachrymal sac, and a discharge of muco-purulent fluid mixed with tears, from the puncta lacrymalia, when the sac is compressed. *Salivary fistula* is a fistulous aperture in one of the salivary ducts, opening externally, and through which the saliva escapes. It is generally caused by a wound, and if this be reached, a cure may be effected by merely bringing together and uniting the edges of the wound; but if of some standing, a free canal ought to be formed for the discharge of the saliva into the mouth.

FISTULA IN ANO. (See FISTULA.)

FITS. (See APOPLEXY, CONVULSIONS, EPILEPSY, HYSTERIA, ETC.)

FIXED AIR, *fixt are*, the name given by Dr. Black to carbonic acid gas. (See CARBONIC ACID.)

FLAG, BLUE. (See IRIS VERSICOLOR.)

FLANNEL, *flan'nel* [Fr. *flanelle*], a woolen texture, is an article of clothing which should be worn next the skin by every man, woman and child. Under the head flannel is included, of course, woolen clothing generally. Wool being a bad conductor of heat, is, in consequence, the best protection against sudden vicissitudes of temperature, such as occur in this climate, and also against chills which may supervene upon the profuse perspiration of a warmer one. Of course the thickness of the woolen material worn next the skin may and ought to be varied, but wool it ought to be, if of not stronger texture than gauze. The experience of our military and naval surgeons all tends to prove that there is no greater preservative from the dysenteric and febrile affections of hot climates than woolen clothing next the skin, and every medical man's experience in this country confirms the fact of its protective power. Notwithstanding, it is astonishing how many carelessly neglect this indispensable article of clothing. Some few persons with extremely irritable skin cannot wear flannel next it; in such cases, a dress of thin cotton should be worn, and flannel over, or a woven silk texture is a good substitute. Flannel should be worn in summer, but not of too heavy a texture: still, if a tendency to rheumatism exists, it should not be too thin.

Underclothes become impregnated with perspiration, the exhalations of the body, dust, etc., during the day. They should therefore be changed at night. No garment should be slept in that has been worn during the day. Underclothing should be washed frequently, at least once a week. (See CLOTHING.)

FLATULENCE, *flat'-u-lense* [Lat. *flatus*, a blast], is one of the most common, as it is often one of the most distressing, symptoms of indigestion. Gas, which is normally formed, and is, therefore, always to be found in the stomach and bowels, has been evolved in too large

amount; or, owing perhaps to some spasmodic affection of the bowels, or it may be to the simple abeyance of the ordinary movement in the bowels necessary for the passage of their contents, whether gaseous or solid, flatus has collected to an unusual extent in one part.

The most distressing feeling arising from flatulence is the sense of distention; and this may be experienced in the stomach itself, or in some part of the intestinal track. This painful sensation is, sooner or later, followed by the passage of the gas upwards or downwards—suddenly, it may be, like an explosion, or more gradually and favored by movements which the patient has it in his power to make. If the air passes upwards, the patient is said to belch—an act which, for a time, seldom fails to bring relief. When the attack is a very severe one, and the amount of distention of the stomach great, there frequently occur pains, not only in the neighborhood of that organ, but shooting up to the chest, even to the throat and head. Owing to the distended stomach—and the same applies, though less markedly, to the bowels when they alone are the seat of the flatulent collection—pressing against the midriff or diaphragm, the breathing becomes considerably embarrassed. In connection with flatulence, unless merely accidental in its occurrence, there is usually found derangement of the function of the bowels, very often a confined condition or obstinate constipation; while, in some cases, the same cause which determined the flatulence—some marked error in diet—gives rise to a condition of looseness or diarrhœa.

The habitual sufferer from flatulence should exercise very great caution in regard to both regimen and diet; walking immediately after making a hearty meal, or the sitting down to some laborious mental occupation whenever food has been swallowed—these are fruitful sources of flatulence, as well as of other distressing symptoms. Not less mischievous is the rapid bolting of the food itself, which men of business and students are so apt to persevere in. The neglect of regularity in the function of the bowels is another great cause of flatulence; the proper adjustment of diet and regimen, favored, if necessary, by some gentle laxative medicine, should, by those who are apt to suffer, be carefully attended to.

When a severe attack of flatulence has occurred, the patient, no doubt, has at once loosened his clothes, and so doing, has felt a little relief; let him then take a little of one or the other of the following simple medicines—antispasmodics, carminatives, they are called; of these peppermint, as best known for the purpose, may be named first; 1 ounce (2 tablespoonfuls) of peppermint water, or 30 to 40 drops of the spirit of peppermint, or 2 drops of its oil in warm water, may be given for this purpose. Cardamoms is another favorite remedy; the simple tincture or

the compound tincture (containing caraway and cochineal, among other ingredients), in doses of 1 or 2 teaspoonfuls, may be given also in warm water. If these remedies are not at hand, a little ginger (5 to 20 grains) may be administered in warm water, or a teaspoonful of its tincture, or a little black pepper (5 grains) after the same fashion. Meantime the application of warm fomentations or a mustard poultice over the belly will be useful; and, after the patient has recovered from the more serious uneasiness, a good prescription is a laxative combined with an anodyne. A full dose (if for an adult, 2 teaspoonfuls) of Gregory's mixture, with 20 or 25 drops of the solution of the muriate of morphia, or 1 tablespoonful of castor-oil, with 10 drops of laudanum. (See DYSPESIA, DIGESTION, DIET, FOOD, REGIMEN, ETC.)

FLAXSEED. (See POULTICE, LINSEED.)

FLEABANE. (See ERIGERON.)

FLESH, *flesh* [Ang.-Sax. *flæc*], a compound substance, constituting a large portion of every animal, and consisting of the softer solids, as distinguished from the bones and fluids. Chemically considered, flesh consists of fibrine in a coagulated form, permeated by at least three times its weight of water and fluid, consisting partly of blood and partly of substances secreted from it. The soluble matters consist chiefly of albumen, the soluble salts of the blood, two animal principles, called kreatine and inosite, and phosphoric, lactic, butyric, acetic, and formic acids. The salts consist of the phosphate of potash, magnesia, and lime, and a small quantity of chloride of sodium. (See BEEF, MUTTON, FIBRINE, MUSCLE.)

FLESH BRUSH, is a brush used for rubbing the surface of the body in order to excite the cutaneous circulation. Its use is very advantageous where the circulation is languid.

FLIES, *flize*. A strong decoction of quassia chips well sweetened with brown sugar or molasses, makes a safe and effectual fly-destroyer, and much preferable to the poisonous articles used for this purpose. (See DECOCTION, SIMARUBA EXCELSA.)

FLIES, SPANISH. (See CANTHARIDES.)

FLOCCILATION, *flok-sil-la'-shun* [Lat. *floccilatio*, from *floccus*, a lock of wool], in Medicine, is a term applied to the picking the bed-clothes, which is sometimes observed in the last stages of fever and other violent complaints, and which is always regarded as a symptom of great danger.

FLOODING. (See HEMORRHAGE, CHILDBED, ETC.)

FLOREDA, CLIMATE OF. (See CLIMATE, HEALTH RESORTS.)

FLOUR, *flower*, [originally *flower*, Fr. *fleur*], the finely-ground meal of wheat, and of any other corn or *cereal*ia which has been reduced to

powder in a mill. There are several varieties of flour, depending upon its fineness, or the amount of bran which it contains. (See BREAD.) The component parts of flour are starch, gluten, sugar, gum, bran, and water, the prime element being starch. No substance is more adulterated than wheat flour; and there are several modes of detection, the best of which is the specific gravity test, as a vessel which contains one pound of wheat flour will contain nearly a pound and a half of any other. (See BREAD, FOOD, CEREALS.)

FLOWERS OF SULPHUR. (See SULPHUR.)

FLUCTUATION, *flukt-yu-a'shun*, [Lat. *fluctuo*, to flow, or rise and fall, like the waves], in medical language, is the movement given to fluids in cavities—either natural or diseased—by the fingers of the medical man whilst at the same time he endeavors to make himself acquainted with the various peculiarities which characterize the collection. (See ABSCESS.)

FLUID EXTRACTS. (See EXTRACTS.)

FLUOR ALBUS. (See WHITES.)

FLUX, *fluks* [Lat. *fluus*, from *fluo*, I flow], is applied to any preternatural fluid evacuation from the body, but more especially to those that proceed from the bowels. It is frequently applied to diarrhoea, and dysentery was long known as the bloody flux. (See DIARRHOEA, DYSENTERY.)

FLUX, BLOODY. (See DYSENTERY.)

FLY. (See FLIES.)

FLY-TRAP. (See SARRACENIA PURPUREA.)

FENICULUM, *fe-nik'-u-lum* [from Lat. *fœnus*, the fennel], a genus of the Nat. order *Umbelliferae*. There are two species—namely, *F. vulgare* the common fennel, and *F. dulce*, the sweet fennel. The fruit of the *F. dulce* is officinal, and is imported from Malta. It is stimulant, carminative, and is sometimes employed in flatulence, dyspepsia, colic, etc. Fennel water is made by taking 1 pound of the fruit bruised and 2 gallons of water, and distilling 1 gallon.

FÆTID SORES. (See CLAY, SORES.)

FÆTUS, *fe'-tus* [Lat. from *fœo*, I bring forth], is applied to the child in the uterus from the fifth month of the pregnancy to the time of birth. Previous to that time, it is commonly called the *embryo*; but these terms are rather arbitrary, and the one is frequently used for the other. (See EMBRYO, PREGNANCY.)

FOMENTATION, *fo-men-ta'-shun* [Lat. *foveo*, to keep warm], is a method of applying heat and moisture to any portion of the body—a most useful remedy, if well done, but so often badly performed, as to do more harm than good; for this reason, a bran-bag poultice, properly

made (see BRAN) is in most cases preferable. When fomentation is to be performed, the bed or clothes should be guarded by some water-proof material if possible. Two good-sized pieces of coarse flannel are to be employed, one being in preparation whilst the other is in use. The flannel being wrung out of hot water, should be shaken up loosely, and laid upon the part under treatment. The size of the flannel must of course be proportioned to the case, but it should be ample. Simple warm water is generally sufficient for fomentation; but in some cases, the decoction of poppy capsules may be more soothing. Other additions are of no service beyond ensuring the greater attention and confidence of many ignorant persons, who will not use, either with care or confidence, so simple an application as water. (See BRAN, HEAT, POULTICE.)

FOMITES, *fom'-ites* [Lat. *fomes*, fuel], is a term applied to such substances as are believed to be capable of receiving, preserving, and conveying contagious affluvia, as wool or woollen clothes.

FOOD, *food* [Ang.-Sax. *foda* or *fode*], that by which the living body is nourished, in its widest sense, comprehends both liquid and solid aliment.

Water is not only the medium by means of which most of the operations which go on in living bodies are conducted, but it also enters so largely into the composition of these bodies, that it must be regarded as one of the alimentary principles, a due supply of which is necessary not only for health, but for life; and this supply must be constant, in order to compensate for the loss of moisture which is continually going on from the surfaces, exterior and interior, of the living body.

The food taken by man and animals, has, or ought to have, reference in its composition to two distinct ends—the nourishment of the bodily tissues, and the maintenance of animal temperature.

Milk is the only single article of diet which in itself contains this essential combination in properly balanced proportion. In addition to water and saline ingredients, milk contains three distinct sets of principles: the albuminous, represented by the curd; the saccharine—in which is included the farinaceous—represented by the sugar, and the oleaginous, or fatty, by the cream. Of these, the albuminous principles and salts are requisite for building up of the frame; the saccharine and oleaginous for, so to speak, supplying it with fuel; they are what has been called respiratory food, because they chiefly furnish materials, carbon and hydrogen, which may combine with the oxygen taken in from the air by the lungs, and burn as it were, within the body by a slow and gentle process. It must not, however, be imagined that the saccharine and oleaginous principles are solely devoted to purposes of fuel; they also serve important ends in the nutrition of the body, but as they contain

no nitrogen, it is evident they cannot afford proper nutriment to tissues of which this element forms an essential component; they cannot, therefore, form muscle, but they can form fat which contains no nitrogen and requires none. In truth, the sugar, starch, and probably the fibre and gum of vegetables, must constitute the chief sources for the formation of fat in gramminivorous or vegetable feeding animals.

The albuminous, the saccharine, and the oleaginous principles must each be taken as the representatives of a peculiar class of substances. Under the head of albuminous principles, falls the caseine, or curd of milk; albumen, as we see it in the egg; and fibrine, as it coagulates from blood, or forms part of animal muscle. These are principles all identical, or nearly so, in composition, but in different states of vital organization; they are composed of carbon, hydrogen, nitrogen, and contain phosphorus and sulphur in small proportions. They are, therefore, adapted to afford due nourishment to such portions of the living animal body as are similarly constituted: the milk curd is the only substance contained in that fluid from which the young animal can form its blood and its muscle; from the albumen of the egg alone all the tissues of the chick are constructed; and the carnivorous animal subsists upon the muscle—flesh—of its victims; these principles are therefore in themselves capable of sustaining life; not so the oleaginous and the saccharine, which represent, the one the fats and oils, and the other the starch, the sugar, and the gum. These being deficient in nitrogen, in sulphur, and phosphorus, cannot yield them, and therefore an animal fed upon them alone, will die of starvation—as regards certain essential components of its body at least.

What is applicable to the food of animals is also to that of man, as regards the nutrient principles; the bodies of both stand upon the same level, but man has the will and the power to consume both vegetable and animal food, either mixed or singly, as may suit his habits.

Existence upon animal flesh alone is not common, but it is practicable and practised by the Indians of the South American Pampas, and by many people who live by hunting; but all these, like the carnivorous animal, make long-continued muscular exertion, without which, indeed, under the peculiar diet, they could not preserve health.

Existence upon vegetable food alone is much more common than that upon animal food alone, and indeed, is the rule with many nations and people, who unquestionably maintain high strength and vigor upon it; it is, in fact, only requisite to look at the grass-eating bull to feel convinced of the possibility of the fact, and did space permit, it would be easy to cite abundant confirmatory examples; but if man lives on vegetables he must, like the vegetable-eating animal, consume a comparatively

large bulk to obtain sufficient nutriment; and so it is, the Hindoo must eat seven or eight pounds of rice at a meal. The cereal grains and pulses possess albuminous principles largely—the gluten of the former corresponding to the animal fibrine, and the caseine of the latter to the curd of milk. Those persons, therefore, whose vegetable food is composed chiefly of the above, require, of course, to consume less, and there cannot be the slightest doubt that man may lead the most active and healthy life upon a grain diet alone, and especially if it be combined with milk. But what is possible may not always be expedient, nor suited to man's circumstances. The healthy active countryman constantly exercised in the open air will do well on a vegetable diet, under which the city artizan or man of business, the delicate female, the pale, perhaps scrofulous, child would become diseased, or sink and die. Their organs of digestion and assimilation cannot extract from the vegetable mass sufficient blood-nourishment, neither do they receive sufficient stimulation from it. Climate has a remarkable effect in modifying the rule as to a mixture of animal and vegetable food. The former has most of a stimulating quality, and this quality is greater in beef and flesh in general than in fowl or fish. Now, the inhabitants of torrid countries are in their ordinary condition least in need of stimulus; hence they find a simple diet of rice and sago sufficient for them. Those, on the contrary, who dwell in cold countries, need much stimulus: hence they can devour vast quantities of flesh and blubber, with scarcely any mixture of vegetable food. The nutritious character of any substance, or its value as an article of food, does not depend simply upon its containing either of the alimentary substances in large quantity, but upon its containing them mingled together in such proportions as is requisite for the healthy nutrition of the body. The total quantity of food required by man has been variously estimated. It will necessarily vary, indeed, not only with the constitution and habits of the individual, but also with the quality of the food employed, since some articles, such as corn and meat, contain very much more alimentary material in the same bulk than fresh fruits or vegetables. Prof. Dalton, of New York, says that from experiments performed while living on an exclusive diet of bread, fresh meat and butter, with coffee and water for drink, it has been found that the entire quantity of food required during twenty-four hours by a man in full health, and taking free exercise in the open air, is as follows:

Meat.....	16 ounces	or 1.00 lb.	avoirdupois.
Bread.....	19 “	or 1.19 “	“
Butter or fat	3½ “	or 0.22 “	“
Water.....	52 “	or 3.38 “	“

That is to say, rather less than $2\frac{1}{2}$ pounds of solid food, and rather over 3 pints of liquid food.

Then, again, from experiments of some of the highest authorities, the following deduction has been made, namely: that a strong healthy man requires 300 grains of *nitrogen* and 4,600 grains of *carbon* to make up the waste which daily takes place in his system; and here it would not be out of place to insert a table from Dr. Letheby's work on food, giving a comprehensive idea of the nutritive value of different articles of diet, and, keeping in mind the daily waste of the body, a simple calculation will enable us to see how much of each article one would require to take before getting enough of both the carbon and the nitrogen.

Nutritive value of food.—The quantity of food required to furnish 300 grains of nitrogen, together with the amount of carbon contained in that quantity.

	Lbs.	Nitrogen or Flesh producer. Grs.	Carbon or Warmth producer. Grs.
Bread.....	3 $\frac{1}{2}$	306·25	6911·45
Wheat Flour.....	2 $\frac{3}{4}$	319·55	7424·72
Oatmeal.....	2 $\frac{1}{8}$	298·57	6013·45
Rice.....	4 $\frac{1}{2}$	303·55	12272·45
Peas.....	1 $\frac{1}{4}$	309·75	3373·12
Arrowroot.....		No Nitrogen	
Potatoes.....	14	302·80	35711·20
New Milk.....	7 (5 $\frac{3}{4}$ pts.)	308·70	4189·50
Cream.....	10	294·40	22519·0
Butter-milk.....	7	301·70	2709·70
New Milk Cheese (Cheddar).....	1	305·90	3343·90
Skim Cheese.....	10 oz.	301·87	1217·12
Lean Beef.....	1 $\frac{1}{2}$	311·85	1362·90
Fat Beef.....	2	319·20	4198·95
Lean Mutton.....	1 $\frac{1}{2}$	296·10	1464·75
Fat Mutton.....	2 $\frac{1}{4}$	300·82	6351·97
Veal.....	1 $\frac{3}{4}$	311·15	3089·45
Fat Pork.....	2·14 oz.	303·85	4637·58
Tripe.....	2·2 oz.	303·32	3625·55
Poultry.....	2·5 oz.	296·70	2264·63
White Fish.....	2·9 oz.	309·53	1273·12
Eels.....	2 $\frac{3}{4}$	294·52	4086·52
Salmon.....	1 $\frac{3}{4}$	303·80	1661·0
Entire Egg.....	2	302·40	2545·20
White of Egg.....	1 $\frac{1}{4}$	293·5	885·73
Yolk of Egg.....	1 $\frac{1}{4}$	301·35	5089·87
Beer and Porter.....	220 (22 gals.)	308·0	60368·0
Red Herrings.....	1·6 oz.	298·30	1973·11
Cocoa.....	1·2 oz.	297·5	8359·75
Bullock's Liver.....	1 $\frac{1}{2}$	305·55	1400·70

Although a strong healthy man consumes 4,600 grains of carbon, and about 300 grs. of nitrogen, it has been found in times of famine, and in workhouse and prison diet, that an average woman can live on daily:
grs. 3,900 carbon, grs. 180 nitrogen, equal to 2 lbs. bread.

A man on:

grs. 4,300 carbon, grs. 200 nitrogen, equal to 2 $\frac{1}{4}$ lbs. bread.

This amount barely sustains life, and is only suitable for idleness.

To yield 300 grains of nitrogen it would only be necessary to eat $1\frac{1}{2}$ lb. (in round numbers) lean beef; but to yield enough carbon it would be necessary to eat $6\frac{1}{2}$ lbs. daily. Therefore, bread, potatoes, or other farinaceous or oily food, rich in carbon, must be eaten with beef. To get enough nitrogen from bread (baker's) $3\frac{1}{2}$ lbs. would have to be eaten; of potatoes, 14 lbs.; and of turnips, 23 lbs. But the $3\frac{1}{2}$ lbs. bread would yield 6,912 grains of carbon, or one-third more than is required; the 14 lbs. potatoes 10,766 grains, or nearly two-thirds more than necessary.

From the above table we find that the food which is richest in nitrogen is cheese made from skim milk, 10 oz. being sufficient to furnish 300 grains, but that quantity only yields 1,217.12 or about a fourth of the carbon or heat-producing element. Cocoa is the next in order, 1 lb. 2 oz. only being required, but this gives nearly double the carbonaceous matter necessary. The relative proportion is :

1 part nitrogenous to 7 carbonaceous
or
1 part nitrogen to 22 available carbon.

In order, then, to get a correct proportion of both elements, a mixture of two or more kinds of food is required. In the case of a few substances, as bread, oatmeal, or milk, one could live entirely on either of these, as the proportions of carbon and nitrogen are in nearly proper ratios. If one were to drink about three quarts of new milk daily, enough nourishment would be supplied to the body to keep it in working order. But as by-and-by there might be difficulty in digesting such a large quantity of fluid taken daily, the body would come to be badly nourished. The same would take place in the solitary use of any one article, even bread; there would be first a disgust, then a waste. Combining oatmeal and milk, a most nourishing diet is obtained; chemistry and experience alike prove this. Many of the Scotch plowmen live from week's end to week's end almost entirely on that, and maintain fine physiques. Ten prisoners in Bridewell, Glasgow, were put on the following diet for two months, at the end of which all except one man gained in weight more than four pounds.

Breakfast, 8 ounces of oatmeal made into porridge, and 1 pint of butter-milk.

Dinner, 3 lbs. boiled potatoes, with salt.

Supper, 5 ounces oatmeal made into porridge, with half a pint of butter-milk.

The cost, including cooking, $2\frac{3}{4}$ d. per diem. This is worth knowing during hard times; though the cost would be considerably higher in this country.

On another occasion five young men and five women lived on a similar diet for several months, only for the pint of butter-milk at breakfast, one-third pint of skim milk was substituted. Each increased on the average four pounds.

In that diet there were:

Nitrogen.....Two hundred and sixty grains.

Carbon.....Five thousand, five hundred and thirty grains.

If the potatoes were baked, the prisoners lost in weight, and did not like them so well.

A mixture of animal and vegetable diet is undoubtedly the best; there is a saving both pecuniarily and physically, and physiology, anatomy, and experience prove it to be the best.

Livingstone said, "The Makololo, who live on vegetable diet, soon tire and die if on a long journey; but those who live on flesh scorn the idea of ever being tired."

Cases are on record where people have lived for years on much smaller quantities of food than that indicated as necessary. Thus Cornaro is said to have lived for fifty-eight years on 12 ounces of vegetable matter and 14 ounces light wine daily. And a miller of Billericay lived on sixteen ounces of flour daily, made into a pudding with water only. On the other hand, there are cases of extraordinary eaters. Captain Parry tells of a young Esquimaux who consumed at one meal thirty-five pounds of various kinds of food, including tallow candles! Also a Hindoo who could eat a sheep at one meal. These are exceptional cases.

The ultimate object of all food is the production of carbon to warm, and nitrogen to make flesh. The substance which does not contain nitrogen in some form, cannot add one particle of permanent strength to the system. *Pure alcohol* being almost wholly carbon, is not food.

In the preparation of food for eating, much depends upon the way in which it is cooked. As all the nutritious juices of meat are soluble in cold water, it is necessary, when preparing boiled food, to place the meat in boiling water in the first place. This coagulates the albumen on the surface; and forms a crust or shell, which prevents the escape of the nutritious juices. If, however, the object is to make soup, the meat should be put into cold water, and gradually raised to the boiling-point. In roasting or broiling meat, the first application of heat should be vigorous and rapid, in order to coagulate the albumen and form a crust, so as to retain the juices, as in boiling. (See BOILING.) In the process of roasting, the cellular tissue is converted into soluble gelatine, and the fat is melted out of its component cells. Baked meat—or meat cooked in unventilated ovens—is less digestible than that which is properly roasted before a fire, or in a ventilated oven, or boiled, as it contains

more empyreumatic oil. Frying is the most unwholesome form of cooking, as it is mostly performed with the assistance of heated oil or fat, which is decomposed during the operation. Smoking, pickling and salting meat, not only harden the animal textures, but, in the case of salting, the food is rendered less nutritious, as a large quantity of albumen, soluble phosphates, lactic acid, potash, creatine, and creatinine, are abstracted in the brine. Very few vegetables are roasted; they are, as a general rule, boiled. Those which contain saccharine matter, such as carrots, beetroot, parsnips, etc., are best cooked by steam, as boiling water dissolves out a large quantity of their nutritious ingredients. Vegetables, however, which contain much starch, as potatoes, should be boiled. By boiling, the granules of the starch are ruptured and partially dissolved, and any volatile oils which may be present are expelled. All kinds of flesh are not equal with regard to their nutritive value. Veal, for instance, is totally different from beef. It contains a smaller quantity of the alkalies, and there is fifteen per cent. more phosphoric acid than is necessary for the formation of salts; it contains, also, little of the fibrine of flesh, and proportionately more of the fibrine of blood, which is less digestible than the former. Veal is rich in gelatine, which is not nutritious, and seldom contains any quantity of fat; it also contains very little iron. In all these points it is the reverse of beef. Hard-boiled eggs have little or no nutritive power, and the same may be said of boiled fish, the soup of which is generally thrown away. In order to make up the necessary deficiency of nutritive matter in veal, eggs, and fish, vegetables should be taken with them. Celery contains eighteen per cent., salad twenty-four per cent., and cabbage sprouts, ten per cent., of their dry weight of salt, alkalies, and alkaline earths. Vegetable food in general contains a large proportion of iron. In the human body, iron is present in the blood, the bile, and other places. When the blood is deficient in iron, the physician prescribes either iron, or chalybeate waters. The presence of this metal is therefore necessary in food. Prolonged abstinence from fruits and succulent vegetables brings on scurvy. The absence of the acids which they contain produces this effect; thus lime-juice is used by sailors with good effect on long voyages. Amongst the condiments used for flavoring food, are mustard, cayenne pepper, black pepper, and various spices. They owe their action to the presence of a volatile oil. The volatile oils of fennel, thyme, parsley, anise, caraway, horse radish, mustard, and water-cress, stimulate the system, but do not incorporate themselves. Condiments and sauces (which are usually fluid mixtures of condiments), in time, generally weaken the organs, which they at first stimulate. The only exceptions are salt and vinegar.

Foods, for the convenience of dyspeptics, may be divided into four classes: First, foods easily digested; second, the moderately digestible; third, the difficult to digest; fourth, the indigestible.

CLASS I.—THE EASILY DIGESTED, OR SAFE.

The varieties of food placed under this head may be safely used by all dyspeptics, and in most forms of dyspepsia, keeping out of view a few exceptional individuals who have peculiar idiosyncracies which reverse all ordinary rules of dietetics. A ladder of diet under this class would begin with *milk*. Milk has already been considered, and is easy of digestion; equal parts of milk and lime or soda-water will prevent it from causing weight or uneasiness. It is more easily digested if drunk before the cream is allowed to rise, as previous to that the particles of oil are more minutely divided. Of course no acid food or drink should be taken for some time after milk. Milk takes about two hours to digest.

It is important not only that a thing should be easily digested, but that it should possess nourishing properties after it is digested; the most easily digested thing is not always the most nourishing. In milk we have a food, not only easily digested, but nourishing. Beef-tea, mutton broth, and, indeed, most liquid foods, are easily digested, for little digestion is required before they are absorbed by the veins, etc., of the stomach or duodenum. Where the mucous membrane of the stomach is inflamed, food like thick soup may disagree, for the liquid part gets absorbed, leaving the solid on a stomach, which does not afford gastric juice enough to digest it. This is frequently the case in fevers, therefore only the most fluid forms of food should be allowed in such cases. Milk and rice, or sago, or tapioca, require no longer time to digest than milk alone.

Under the first class may be placed all farinaceous diet, as bread and milk, milk puddings, and milk itself. Eggs, tripe, white fish, especially whiting and sole, plaice and salmon-trout, as they are devoid of oil or fat. The lean of a mutton-chop and underdone roast beef may usually be tolerated by weak stomachs. Also raw oysters; jellies, baked custard; chicken broth with some of the chicken grated down (as the chicken is of a close fibre.) The breast of turkey roasted, and boiled partridge are admissible. Also extract of meat, grapes, ripe oranges the pips being rejected.

Soda biscuits (sometimes called soda crackers), toasted bread, aerated bread, and stale bread—not new or home-made bread—are suitable.

DRINKS.—Barley soup; toast and water; cocoa without starch, and plenty of milk; beef-tea; mutton broth, with the fat all skimmed off; and veal broth, may be taken; also lemonade, ginger-beer or soda-water.

All the above are easily digested, though much will depend on the cooking, or preparing, for if badly cooked, or cooked twice, they may be made indigestible, and therefore would be placed under the second and third class of foods.

If time in digestion were alone taken into account in classifying articles of diet for dyspeptics, many vegetable substances would be added, as salad, potatoes, hash meat and vegetables, apple dumplings, etc., for these are chymified in as short a time as boiled mutton; but vegetables are so apt to set up fermentation, that they must be placed in the third class.

CLASS II.—FOODS MODERATELY DIGESTIBLE.

These take from two to three hours to digest. Boiled eggs—boiled enough just to coagulate the white. Mutton, roast and boiled; and mutton-chops. Beef, roast and underdone; and tender beef-steak. Beef is more difficult to digest than mutton, its fibres being more infiltrated with fat. Chicken; wild rabbit; sweetbread; pigeon; quail; prairie chicken. Oysters cooked, and oyster soup; turtle fins; cod and turbot. Mealy potatoes; raw cabbage with vinegar; cream and butter; sugar. Venison, which to some stomachs will be found rather stimulating. Turtle if young and plainly cooked. Milk and yelk of eggs, though these may lie heavily because of the fat they contain. Farinaceous preparations, as farina, Indian corn-bread, etc., should be placed in this second class. The fat of bacon is easily digested; so is cod-liver oil. Other fats should be placed under the third class. Game is easier to digest than poultry or meat. Coffee and weak tea, with plenty of milk, should be placed in this class.

CLASS III.—FOODS DIFFICULT TO DIGEST.

These take from three and a half to four and a quarter hours. They are mostly unsuited for dyspeptics, and if taken should be taken with caution, at once leaving them off if pain or other inconvenience be caused. This is a “dangerous” class, to say the least, and under it are included: liver and kidney; fried beef, or cold roast beef stewed; boiled salt beef; fowl boiled or roasted; roasted duck or wild duck; lamb and suckling pig; soup from beef, with vegetables and bread; hash meat and vegetable. Salmon, herrings, and sprats—these abound in oil and are stimulating, causing thirst and an uneasy feeling in the stomach. Pheasant and partridge (being rich and stimulating); duck and also goose, their flesh being permeated with fat. Ham and eggs—the fat of salt pork and bacon is less injurious than fresh animal fat—omelets; jams. These latter irritate, therefore they may be useful in constipation.

Fancy bread, rolls, home-made bread, cakes, hot buttered toast, hot

biscuits, pastry, suet and yeast pudding and pancakes, muffins and crumpets.

Preserved meats, as sardines; tongues; salmon; and mackerel

In this class may be placed vegetables, as boiled carrots, turnips, parsnips, beans and peas, new potatoes (on account of being so waxy.) Cucumbers, anchovies, celery, onions, garlic and leeks, etc. Some of these relatively may not be difficult to digest, but on account of the tendency spoken of to disagree in dyspeptics, they should be regarded as dangerous, and some of them even poisonous, to certain stomachs. The same may be said of fermented liquors—beer, ale, stout, and porter; also most wines, the light wines, as claret and burgundy, excepted. Strong tea, and perhaps coffee, should also be placed here; also pickles and condiments, unless aromatics are required, then they should be used with caution. Almonds, nuts, and all substances intimately incorporated with oily matter, or things hard and difficult of penetration by gastric juice, unless they are previously powdered in a mortar; therefore, only a limited quantity of cheese can be digested, especially if roasted. Cheese is very nitrogenous, and, therefore, very nourishing when digested. Shrimps; shell-fish, as crabs, lobsters, and mussels; entrees and other dishes seasoned with spices, are all difficult to digest.

CLASS IV.—INDIGESTIBLE.

The following are very difficult to digest, and should always be avoided by those who have weak digestive organs; and by those who are strong they should be sparingly used, unless they have ostrich-like stomachs:

Veal and ham pie.	Melted butter.	Husks of fruit.
Pork.	Red herrings.	Rinds of fruit.
Veal.	Eels.	Raw spirits.
Beefsteak pie.	Fried dishes.	Unripe fruit.
Sausages.	Roe and milt.	New bread.
Salt beef.	Hard-boiled eggs.	New potatoes.
Cheese.	Radishes.	Shell-fish.
"Puff" pastry.	Nuts.	Currants.
Hashes and stews.	Dumplings.	

All tough substances, vegetable and animal.

The most of the above take from four hours to five and a half hours to digest.

Dr. Beaumont, a surgeon in the United States army, made some interesting experiments upon a Canadian who had been shot in the left side. In the process of healing, an aperture was left, by means of which *Dr. Beaumont* was able to observe everything that took place in the stomach. As the result of his experiments and observations, we have the following table, showing the digestibility of food in order of

time, the first column giving the articles of diet, the second the mode of preparation, and the third the mean time required for digestion, indicated in hours and minutes :

DR. BEAUMONT'S TABLE.

ARTICLES OF DIET.	Mean Time of Digestion.	
	Preparation.	H. M.
Rice.....	Boiled.....	1 0
Pigs' feet, soused.....	Boiled.....	1 0
Tripe, soused.....	Boiled.....	1 0
Eggs, whipped.....	Raw.....	1 30
Trout, salmon, fresh.....	Boiled.....	1 30
“ “ “.....	Fried.....	1 30
Soup, barley.....	Boiled.....	1 30
Apples, sweet, mellow.....	Raw.....	1 30
Venison steak.....	Broiled.....	1 35
Brains, animal.....	Boiled.....	1 45
Sago.....	Boiled.....	1 45
Tapioca.....	Boiled.....	2 0
Barley.....	Boiled.....	2 0
Milk.....	Boiled.....	2 0
Liver, beef's, fresh.....	Broiled.....	2 0
Eggs, fresh.....	Raw.....	2 0
Codfish, cured, dry.....	Boiled.....	2 0
Apples, sour, mellow.....	Raw.....	2 0
Cabbage, with vinegar.....	Raw.....	2 0
Milk.....	Raw.....	2 15
Eggs, fresh.....	Roasted.....	2 15
Turkey, wild.....	Roasted.....	2 18
“ domestic.....	Boiled.....	2 25
Gelatine.....	Boiled.....	2 30
Turkey, domestic.....	Roasted.....	2 30
Goose, wild.....	Roasted.....	2 30
Pig, suckling.....	Roasted.....	2 30
Lamb, fresh.....	Broiled.....	2 30
Hash, meat and vegetables.....	Warmed.....	2 30
Beans, pod.....	Boiled.....	2 30
Cake, sponge.....	Baked.....	2 30
Parsnips.....	Boiled.....	2 30
Potatoes, Irish.....	Roasted.....	2 30
“ “ “.....	Baked.....	2 30
Cabbage head.....	Raw.....	2 30
Spinal marrow, animal.....	Boiled.....	2 40
Chicken, full-grown.....	Fricaseed.....	2 45
Custard.....	Baked.....	2 45
Beef, with salt only.....	Boiled.....	2 45
Apples, sour, hard.....	Raw.....	2 50
Oysters, fresh.....	Raw.....	2 55
Eggs, fresh.....	Soft Boiled.....	3 0
Bass, striped, fresh.....	Broiled.....	3 0
Beef, fresh, lean, rare.....	Roasted.....	3 0
Beef-steak.....	Broiled.....	3 0
Pork, recently salted.....	Raw.....	3 0
“ “ “.....	Stewed.....	3 0
Mutton, fresh.....	Broiled.....	3 0
“ “ “.....	Boiled.....	3 0
Soup, bean.....	Boiled.....	3 0
Chicken soup.....	Boiled.....	3 0
Aponeurosis.....	Boiled.....	3 0

DR. BEAUMONT'S TABLE.

ARTICLES OF DIET.	Mean Time of Digestion.	
	Preparation.	H. M.
Dumpling, apple.....	Boiled.....	3 0
Cake, corn.....	Baked.....	3 0
Oysters, fresh.....	Roasted.....	3 15
Pork, recently salted.....	Broiled.....	3 15
Pork steak.....	Broiled.....	3 15
Mutton, fresh.....	Roasted.....	3 15
Bread, corn.....	Baked.....	3 15
Carrot, orange.....	Boiled.....	3 15
Sausage, fresh.....	Broiled.....	3 20
Flounder, fresh.....	Fried.....	3 30
Catfish, fresh.....	Fried.....	3 30
Oysters, fresh.....	Stewed.....	3 30
Beef, fresh, lean, dry.....	Roasted.....	3 30
Beef, with mustard, etc.....	Boiled.....	3 30
Butter.....	Melted.....	3 30
Cheese, old, strong.....	Raw.....	3 30
Soup, mutton.....	Boiled.....	3 30
Oyster soup.....	Boiled.....	3 30
Bread, wheat, fresh.....	Baked.....	3 30
Turnips, flat.....	Boiled.....	3 30
Potatoes, Irish.....	Boiled.....	3 30
Eggs, fresh.....	Hard boiled.....	3 30
Eggs, fresh.....	Fried.....	3 30
Green corn and beans.....	Boiled.....	3 45
Beets.....	Boiled.....	3 45
Salmon, salted.....	Boiled.....	4 0
Beef.....	Fried.....	4 0
Veal, fresh.....	Broiled.....	4 0
Fowls, domestic.....	Boiled.....	4 0
“ “.....	Roasted.....	4 0
Ducks, “.....	Roasted.....	4 0
Soup, beef, vegetables, and bread.....	Boiled.....	4 0
Heart, animal.....	Fried.....	4 0
Beef, old, hard, salted.....	Boiled.....	4 15
Pork, recently salted.....	Fried.....	4 15
Soup, marrow-bone.....	Boiled.....	4 15
Cartilage.....	Boiled.....	4 15
Pork, recently salted.....	Boiled.....	4 30
Veal, fresh.....	Fried.....	4 30
Ducks, wild.....	Roasted.....	4 30
Suet, mutton.....	Boiled.....	4 30
Cabbage.....	Boiled.....	4 30
Pork, fat and lean.....	Roasted.....	5 15
Tendon.....	Boiled.....	5 30
Suet, beef, fresh.....	Boiled.....	5 30

Experience has mostly verified the results given in this table, but a few of the things require altering by the dyspeptic. Thus venison, though put down at 1 h. 35 m., will be found too rich and stimulating for weak stomachs, and will require to be placed on the second, or even the third class of foods. So pork, which in St. Martin's stomach only took three hours to digest, will prove quite *indigestible* to all dyspeptics;

though those who live in the country, with plenty of fresh air and exercise, will digest pork much better than dwellers in town.

For further information on this subject the reader is referred to the various individual articles of food—animal food, vegetable food, fruits, etc.,—under their respective headings in this work. The subjects of food in sickness, in infancy and in old age are treated under the headings COOKERY FOR THE SICK, SICK-ROOM; CHILD, CHILDREN; AGE, OLD; ETC. (See DIET, DIGESTION, ALIMENTARY CANAL, ALIMENT, MILK, CARBON, ALBUMEN, STARCH, BREAKFAST, LUNCHEON, DINNER, SUPPER, MEALS, SALT, COLD, ANIMAL HEAT, SLEEP, EXERCISE, PHYSIOLOGY, BOILING, BROILING, ROASTING, HEALTH, ABSTINENCE, STARVATION, ADULTERATION OF FOOD, CEREALS, FLOUR, FLESH, ETC.)

FOOD, ADULTERATION OF. (See ADULTERATION OF FOOD.)

FOOT, *foot* [Ger. *fuss*, Lat. *pes*], is that part of the lower extremity below the leg, with which we stand and walk. It is composed of three series or groups of bones—the tarsal, or hindermost; the metatarsal, which occupy the middle portion; and the phalanges, which go to form the toes. The tarsal bones are seven in number. Above, they are connected with the tibia and fibula bones of the leg, and below form the heel and the hinder part of the instep. They are bound together in various directions, by a number of ligaments, one of the principal of which is the plantar ligament, which is of great strength, and passes from under the surface of the heel-bone, near its extremity, forward to the ends of the metatarsal bones. The foot, naturally a beautiful structure, is usually so much interfered with in civilized life, as to be deprived of much of its beauty, and even of its utility. Its movements are impeded by its being confined in tight-fitting boots; while in place of the boots being conformed to the shape of the feet, the feet are made to conform to the shape of the boots. The consequences of which are corns, bunions, cold feet, and a number of other evils, from which so many suffer in the present day.

FOOT-BATH. (See BATHS AND BATHING.)

FORAMEN, *fo-ra'-men* [Lat. a hole], is a term applied to certain holes or openings of the human body, more particularly of the skeleton; as the various foramina of the skull. The *foramen ovale* is a passage or communication between the two auricles of the heart in the fœtus.

FORCEPS, *for'-seps* [Lat.], is the name given to certain instruments of various shapes, according to the purposes they are intended to serve; but the principle of all is that of a pair of pincers, with two blades, either with or without handles. They are much used in surgery, especially for taking hold of substances that cannot be conveniently laid

hold of with the fingers. Certain kinds are used for tooth-drawing; others for securing the mouths of arteries, in order to their being tied; others are used for cutting; others in lithotomy, or for extracting foreign bodies from wounds; and others in midwifery, for aiding delivery in difficult cases.

FORE-ARM, *fore'-ärm*, the lower arm, between the elbow and the hand. It contains two bones—the radius and the ulna. These are jointed at their upper extremity to the single bone of the arm; at their lower extremities to the small bones of the wrist. The bones in the fore-arm are very often broken, and of children, are often bent by accident, without fracture. (See FRACTURES, ARM.)

FOREIGN BODIES IN AIR PASSAGES, *for'-in* [Lat. *foris*, *foras*, without, abroad]. Various are the bodies which may be put into the mouth, and accidentally find their way through the larynx into the windpipe, as fruit stones, morsels of food, false teeth, coins, buttons, etc. When any such body is thus introduced, it gives rise to paroxysms of cough and difficulty of breathing, and in some cases causes death, either by obstructing the respiratory process, or by setting up inflammation of the lungs. This state of things can hardly be mistaken for croup, for we have the history of the sudden onset of the disease in a person previously in good health, and frequently an adult, and expiration is usually more difficult than inspiration. In croup the patient is an infant, and often a male child of two or three years of age, and inspiration is more difficult than expiration, being of a characteristic crowing character.

Treatment.—If the offending substance be loose and round we must order the patient to bed, and he must take some form of narcotic medicine—paregoric or laudanum generally being the most convenient—(see PAREGORIC, OPIUM), so as to allay the spasm existing in the little muscles guarding the entrance to the larynx and windpipe; for in this is the main obstacle to the foreign body being removed by the violent coughing set up by its presence. Several cases are put on record in which foreign bodies were extricated from the windpipe by the patient placing his head downwards, and at the same time the spasmodic affection of the laryngeal muscles may be relieved by the previous inhalation of chloroform. Should these means prove unsuccessful, an artificial opening may be made by the surgeon into the windpipe; in fact, the operation of tracheotomy may be performed; and the inspired and expired air now passing through this newly-formed doorway, the muscular spasm relaxes, and the foreign body is removed by coughing. (See FOREIGN BODIES IN THE GULLET, ACCIDENTS.)

FOREIGN BODIES IN THE EAR. (See EAR, DISEASES OF THE.)

FOREIGN BODIES IN THE EYE. (See EYE, DISEASES OF THE.)

FOREIGN BODIES IN THE GULLET. Foreign bodies lodged in the back part of the throat give rise to difficulty of breathing, suffocative cough, and a sense of choking; this condition may prove fatal in two ways, either suddenly by refusing admission of air to the lungs, or by producing ulceration by the long continued contact of the foreign body, accompanied by profuse expectoration of purulent matter, difficulty of breathing, hectic fever, and night sweats.

Treatment.—The patient must be placed in a chair, and having thrown his head back, must be made to open his mouth widely, one or two fingers of the right hand should then be thrust as far down the throat as possible, and passed round, with a view of feeling, and getting hold of the offending substance; thus fins and fishbones often become entangled under the finger nail, and, if not, after we have found out the situation of the foreign body, we must endeavor to pull it up by means of a pair of long, curved forceps. If the body be small and sharp, as a fishbone, and has passed down the gullet beyond the reach of the finger, it may be pushed downwards by swallowing a crust of bread, or, if large, rounded, and soft, it may be thrust down by the probang, which consists of a piece of bone or sponge attached to a whalebone stem, and having the necessary curve to correspond with the direction of the gullet.

Impending suffocation has, in such circumstances, been relieved by a person, full of presence of mind, rapidly removing from an umbrella one of the pieces of whalebone, and introducing it into the gullet. When, in using such an instrument, the foreign body is reached, it is to be pushed by it gently downwards. When the impacted body is of an indigestible or irritating nature—as, for example, a piece of money—instead of being pushed downwards, it is better, if the necessary instrument is at hand—a pair of long curved forceps—to effect its removal.

Sometimes, smooth bodies, having a rounded form, may be dislodged from the gullet by the exhibition of a brisk emetic; pieces of food may be got rid of in this simple way. As a last resource, when the body remains fast, and cannot be removed upwards or downwards, and the patient's life is in danger, an operation, called by surgeons œsophagotomy, has been performed, but with unsatisfactory results; it consists, essentially, of cutting an opening into the gullet, introducing a pair of slender forceps, and extracting the foreign body through this artificial aperture. Striking on the back will often relieve simple cases of choking. (See FOREIGN BODIES IN AIR PASSAGES, ACCIDENTS.)

FOREIGN BODIES IN THE NOSE. (See NOSE.)

FORMULÆ. (See CHEMISTRY.)

FOUL AIR. (See AIR, MALARIA, DISINFECTANTS, VENTILATION, HOUSES.)

FOWL. (See POULTRY.)

FOWLER'S SOLUTION, *fowl'-erz so-lu'-shun*, is a solution of the arsenite of potash, introduced into practice by Dr. Fowler, as a substitute for the quack medicine called tasteless ague drop. It is the most commonly used of arsenical preparations; is alterative and antiperiodic, and, after quinine, is the best cure for ague. It is also of great use in all periodic disorders, and in diseases of the skin. It is to be given cautiously, in doses of 3 to 5 drops, gradually increased to 20, two or three times a day, always after eating. (See ARSENIC.)

FOXGLOVE. (See DIGITALIS PURPUREA.)

FRACTURES, *frakt'-yurz* [Lat. *fractura*: *frango*, *fractus*, to break], of the bones are accidents which, from their nature, can only be treated with certain efficiency and success by the educated surgeon; but on the other hand, from their frequent occurrence, particularly in situations where no surgical assistance can be readily procured, it is highly desirable that unprofessional persons should be able to manage them in something like an intelligent manner.

The existence of fracture is, in some situations, made out with difficulty, even by the skilful; this is particularly the case in the vicinity of joints such as the ankle, hip, shoulder, etc., but in others, as in the middle of the long bones, such as those of the leg, thigh, fore-arm or arm, the fact is often too obvious to be overlooked by the most careless. The general symptoms of fracture having occurred, are pain and loss of power over the injured limb, which is altered in shape or crooked, probably swollen and shortened. Its lower extremity hangs loosely, and is more movable than it ought to be, motion being generally accompanied with a sensation of grating, perceptible both to the sufferer and to the person handling the limb. The broken ends—generally the upper one—probably project against the skin, or, it may be, protrude entirely through it, constituting a compound fracture. Much of the displacement of the fractured ends of the bone is due to the contraction of some of the muscles of the limb, which are, from the nature of the injury, freed from the controlling counter-action of other muscles. This fact it is important to remember in the treatment, during which, when it can be done without sacrificing too many other essential points, the injured limb should be placed in a position which allows the muscles generally to be in a relaxed condition. In addition to these local signs, a person who has suffered severe fracture is generally faint and depressed for some time after. In many cases of fractured bones, however, the symptoms are far from being so plainly marked as described above.

The fracture of a bone is, of course, in itself, a severe injury, but it is rendered infinitely more so, by the wounding and tearing of the soft parts of the limb by the, generally, ragged ends of the bone; this, therefore, it is desirable to prevent, as much as possible, both in removing the sufferer and afterwards.

It being ascertained that a fracture has occurred, if surgical assistance is not immediately at hand, the removal of the sufferer will probably be requisite. If the upper extremity be the part involved, it should be well supported by a sling in the meanwhile, and the sufferer will find walking a much easier and less painful mode of locomotion than any other. Much injury and suffering are often inflicted upon persons who have fractured a lower extremity, by hasty and injudicious management in the removal; the lower end of the limb is left entirely unsupported, or at best, is carried by some of those around, causing thereby great pain, increasing the wounding of the soft parts within, or, it may be, occasioning the protrusion of the bone through the skin; and thus, especially if the last should occur, diminishing greatly the chances of a good recovery. A person who has fractured the leg, if he be not already lying on the ground, should be placed there till a shutter, a door, or flat board of some kind can be procured; this should be placed alongside, covered of course with coats or the like, and the sufferer, gently, rather slid than lifted upon it; on this *he is to be hand-carried*, even if the distance is considerable, as much preferable either to cart or carriage conveyance. Before lifting, however, the fractured limb should be secured from motion as much as possible, either by tying it to the sound one by means of handkerchiefs, or by straw or other material placed about it. In most cases of fracture of the leg, relief will be given at once by bending the knee, and placing the leg, lying on its outer side, upon a pillow, or other soft material. In the meanwhile, a *firm* bed should be prepared for the patient; a mattress is most suitable if procurable, if not, a board of sufficient length, passed under the ordinary bed, will do; the object of this is to prevent the sinking which inevitably occurs from a person lying long in one place in bed, a circumstance which interferes much, both with comfort and treatment. The object in view in the treatment of a fractured bone, is to preserve the broken ends in contact, as steadily and as exactly in their proper relative positions as possible, so that the curative and consolidatory process may proceed without disturbance, and that when this is complete the symmetry of the limb may be unaltered. In giving directions as to the management of fractured bones by unprofessional persons, the author feels how difficult the task, of conveying the information, is to himself, and how still more difficult it must be to those unaccustomed to deal with

such matters, to treat them at all satisfactorily from a written description; at the same time cases do occur, in which the choice lies only between perfect ignorance and some amount of information of the methods to be adopted. For such cases this article is written; for certainly no sufferer from fracture, in his senses, would submit to, nor any unprofessional person undertake the treatment, if skilled assistance was in any way procurable. In addition, the author would strongly advise any who are likely, in their course through life, to be thrown much in out of the way circumstances, and who would wish to be useful, to see for themselves in some hospital the mode of putting up fractured bones. A few hours, even, of observation, would teach them more than all written descriptions, though these might afterwards refresh the memory.

Either after or before the patient is placed in bed, the clothes must be removed, cut off, the injured limb; of course by the seams if possible. The proper applications must meanwhile be got ready as quickly as may be. These are, splints, such as are recommended in each particular form of accident, with their cushions and bandages. (See BANDAGES.) Some surgeons delay the application of the splints for some days, till the swelling, which always occurs more or less after fracture, has subsided, and some cases may occur in which this is desirable; but the majority of practitioners put the splints on as soon as possible after the accident, and this is certainly the preferable practice. There almost always exists a tendency to spasmodic starting of a limb which has been fractured, for some time after the accident, and this constantly tends to displace the bones, and to increase the laceration and swelling of the soft parts; this may in a great measure be prevented by the early steadying of the whole limb by the splint, which, however, need not be bound tightly, and may be so applied as to be loosened at once if requisite. The elastic splint cushions entirely obviate this objection. These are made of vulcanized india-rubber, and are inflated with air, which can be increased or diminished as required.

A splint is simply an agent which can be bound to a fractured limb, and which will keep it in the straight position; it may, therefore, be made of wood, iron, leather, or even straw. The variety of splints is very great, but as this article is written for use in situations where only the simplest means are supposed to be at hand, the simplest modes of management only will be adverted to. Moreover, fractures may be treated without splints, properly so-called, as by starch bandage or the like, or by position simply. As the continued contact of hard splints would occasion pain, they are usually cushioned or padded; this may be effected by any soft material, care being taken that the padding projects

everywhere beyond the edges of the splint, to which it may, if convenient, be attached by tapes.

Lastly, all things being arranged, the setting of the fracture remains to be effected. This, which is always painful, consists in bringing the broken ends into contact, as much as possible in their proper relative position. In some few cases, as in the leg, it may happen that although there is fracture, there is no displacement; but in the majority of instances the broken ends overlap one another, being drawn by the action of the muscles; the main requisite, therefore, in the reduction of a fracture, is by gentle but steady drawing down of the lower extremity of the limb—whilst the upper is fixed—to bring the ends to a level, and, if possible, place them one against the other; in the drawing down, however, the hand should not grasp the extremity of the fractured bone but should be applied below the joint. Thus, in setting a fractured thigh, the surgeon grasps the leg, not the lower part of the thigh, etc. After a fracture has been once set, it should never, if possible, be disturbed again. This does not mean that the appliances are not to be removed, and the progress of the case inspected; for if this be not done, and if by any chance the proper position should have been disturbed, the bones may become solidly fixed in an improper manner, and deformity result, or the skin may become ulcerated; but the appliances should not be removed, if possible, before the end of the first week, and if all seems going on well, not moved again for ten days at least, unless for some special purpose. If a fracture is often disturbed or pulled about during the process of consolidation, it may chance that this will only be effected imperfectly, and what is called a false joint formed, that is, the broken part, instead of being firm, moves like a joint, and the limb is useless. It had better be crooked or shortened.

Much care is always required that a limb which has been fractured is not used too soon after the accident, otherwise it may either be snapped again, or it may be bent. The first advance towards the cure of a broken bone is the throwing out of a jelly-like matter around the ends; this gradually becomes more solid, and, at last, is converted into a thick ring of bone; but for this latter change the lapse of some months is requisite; although, therefore, the uniting material, or “callus,” as it is called, may be strong enough for ordinary purposes, a considerable time before ossification has been effected, it will not bear extraordinary efforts.

With respect to the general treatment of a person who has suffered from fracture, it is always advisable that for some little time after the accident the diet should be lowered, but that when the inflammatory stage is passed, the individual should return as much as possible to his

ordinary food. Care must be taken, if the person has been accustomed to much alcoholic stimulant, that it is not unduly abstracted, otherwise the powers of the constitution will be so reduced that the reparative process cannot take place, and the fracture will remain ununited. In fractures of the lower limbs, the use of a bed-pan and urinal of some kind will be required, and attention must be given to the back, that it does not get sore. See article FEVER, for precautions as to this.

Fracture of the skull.—Violence applied either directly to the head, or communicated to the skull through the spine, may be sufficient to fracture the bone with or without breaking the skin. The accident is sometimes sufficiently obvious even to the inexperienced, at other times, as in the case of a simple crack, it is not detectible even by the most skilful; but whether plainly apparent or only suspected, the existence of fracture amounts to the same thing, as far as the unprofessional are concerned, as concussion (see CONCUSSION); the case ought to be seen as soon as possible by a surgeon. The symptoms will in many respects resemble those of and following concussion, and may be similarly treated; if there is external wound as well as fracture, simple water dressing should be used. (See DRESSING.) When a portion of bone is driven down upon the brain by external violence, it occasions apoplectic insensibility by the pressure it produces; in such cases the aid of the surgeon is imperatively called for, to relieve by elevating the depressed bone.

Fracture of the lower jaw is generally tolerably evident. The simplest treatment is that recommended by Professor Ferguson. Two narrow wedges of cork about an inch and a half long, a quarter of an inch thick at the base, and sloping away to a point, are placed between the teeth, one on each side; a piece of pasteboard softened in water, or of gutta percha, is then to be moulded round the jaw and fixed, either by a bandage or handkerchief going over the crown of the head. By this method, space is left between the front teeth for the administration of liquid nourishment. The sufferer should rinse the mouth frequently with tincture of myrrh and water.

Fracture of the bones of the spine is a rare accident. It may be suspected when, after injury to the spine, loss of sensation in, or power over the part, ensues below the site of the accident. In such a case nothing could be done by unprofessional persons beyond placing the sufferer in as easy a position as possible. (See SPINE, DISEASES AND INJURIES OF THE.)

Fracture of the ribs is known by the pain which is felt at the injured part at every motion of the body, even by breathing. The sufferer feels a grating sensation, which may be felt by another person laying

the hand on the place. The chief risk involved in fractured ribs is from injury to the lungs by the sharp ends of the bone, and when this occurs it is apt to give rise to inflammation, which will require the usual treatment of the affection, from whatever cause arising. (See INFLAMMATION.) On this account an individual who has suffered from fractured ribs should be especially careful, and for some little time after the accident should reduce his usual diet considerably. The application of the hot bran-bag for some days after the accident will afford much relief, and it may be used over the usual bandage. When ribs on both sides of the chest are injured, this, with leeches if requisite, should be the sole application; the patient being confined to bed for at least a fortnight or three weeks in the posture found to be the easiest, which will probably be a half-sitting one, supported by pillows or some other means. (See BED.) When the ribs on one side only are injured, less confinement is required, but the chest should be encircled as firmly as can be borne comfortably, with a band of stout calico from eight to ten inches wide, and double; this should go once and a half round, and be sewed; a month will probably be required for the cure.

Fracture of the collar bone is a frequent accident, usually from falls on the shoulder. It is generally easily detected. As the use of the collar-bone is to keep the shoulder back, when broken, the shoulder of the injured side falls forward, pushing the broken ends over one another. The object of treatment, therefore, must be to keep back the shoulder by artificial means, until the bone has recovered its solidity. This might be done by keeping a person confined to bed, and in such a position that the weight of the shoulder falling backwards would pull the bone into position without any other means being used; few persons, however, will submit to the confinement necessary, and other methods are resorted to; they are varied, but the following will most easily, and with the best prospect of success, be adopted by the unprofessional. A wedge-shaped pad, of any firm material—a pair of stockings folded will do—is to be enveloped in the middle of a soft shawl or handkerchief of suitable size. The pad is then to be placed in the arm-pit of the injured side, the ends of the shawl must next be crossed over the opposite shoulder and tied in the arm-pit; folded cloth of some kind being interposed to prevent fraying of the skin. Another handkerchief or band of some kind, is next to be applied, so as to bind the arm down to the side in such a manner that the pad in the arm-pit acts as a fulcrum, or gives such a purchase as allows the outer end of the broken collar-bone to be pulled outwards, as the arm is bound to the side; a sling enveloping the whole fore-arm, is next to be applied, and completes the apparatus, which should be worn for a month at least. If carefully attended to this

apparatus will prove very effectual, and the means for it can always be procured. It should be understood that the principle of the treatment is, extending the broken bone by means of the pad in the arm-pit. It is sometimes requisite to apply a bandage from the fingers upwards to prevent swelling. (See BANDAGES.)

Fractures and other injuries about the shoulder-joint are often so obscure that no uneducated person could distinguish them. The best management until surgical assistance can be procured, if it is far distant, will be perfect rest; probably much comfort may be derived from the use of the pad in the arm-pit as recommended for broken collar-bone, and also of a sling supporting the fore-arm, wholly or only at the wrist, as may be most easy to the patient. The confining band, must not, however, be used.

In fracture of the shaft of the arm-bone it is better to put the whole limb in a sling at once, and if the person has to go to the surgeon, if not too far, he will find it easier to walk than to ride in any conveyance. Confinement to bed will be requisite for some days at least, after the accident. The injured limb being laid in an easy position on a pillow, if there is much swelling, it must be lightly bandaged from the fingers to the shoulder, and a couple of splints of wood or other firm material, two and a half inches wide, applied one on each side the limb and secured with just sufficient firmness to prevent movement by means of two or three looped bandages. Pasteboard makes an excellent splint, and is to be found in most houses, in one shape or another, such as a box or the boards of a large book, etc. It should be softened in hot water for a few minutes before it is applied, and when it is removed, it will have moulded itself accurately to the shape of the parts, and will retain that shape when quite firm and hard. It should be padded with wool, cotton, or soft flannel. The bandage is made by taking a doubled length, sufficient for the purpose required, of the common roller bandage; one end, or tail of the bandage, is passed through the flannel looped extremity, and may then be tied to the other tail. This form of bandage has the great advantage of being easily loosened if requisite, on account of swelling. After the first two days, when the swelling has subsided, the fracture of the arm may be put up more firmly and permanently. After bandaging the limb tolerably firm, a splint of pasteboard or of gutta percha, or leather, or indeed of any firm material, is to be put on each side of the limb. These ought, however, to be shaped to come a little way along the fore-arm, and having been previously shaped on the sound arm, instead of the looped bandage, should be well fixed by means of the common roller, which may be kept from slipping by the addition of starch or paste as it is put on.

Instead of the splints, however, the starch bandage alone, if the individual is not very muscular, may be used; but in this case, both the inner and outer bandage must be well saturated with strong starch, flour paste, or gum, or white of egg, and it is well to make the addition of strips of stout paper, pasted down over the inner bandage, and covered by the outer one, to give additional firmness. In this case, it will be requisite to keep the arm very quiet till the paste has dried, or a wooden splint may be tied outside the bandages till this has taken place. A sling will be requisite to support the hand and wrist, but not the elbow, which should be allowed to hang, the weight tending to keep the bone straight.

Fracture of the fore-arm is a very common accident. In children the bones are most frequently partly broken and partly bent; in adults both bones or one only, may be broken; in the latter case, the sound bone acts as a splint to hold the other in place; and should the accident be detected, a perfectly straight splint of light wood applied to the inside of the arm, and extending from the elbow to the tips of the fingers, fixed by a common roller, or by some looped bandages, is all that is required; and, indeed, when both bones are broken, the same treatment will be sufficient, though some apply a splint on each side. After the lapse of a fortnight, in adults, the splints may be taken off, and starch bandage used; but in children who are liable to falls it is better to give them the protection of the wood for some time longer. In fracture of the fore-arm, the sling ought to give support from the elbow to the ends of the fingers, and the limb must of course be kept bent at the elbow during the period of cure.

Fracture of the fingers is treated by a narrow, straight, wood splint, or by starch bandage.

Treatment of a fracture of the lower extremities by an unprofessional person must be a most unfortunate contingency; but the simpler the means used, the more likely will its management be conducted with some efficiency.

In a case of fracture of the thigh, the removal and preparation of the sufferer having been effected as already pointed out, the following apparatus is such as an unprofessional person might, with a little care, manage efficiently; and the materials for its construction can scarcely ever fail to be procurable. Three pieces of wood, about three-eighths of an inch in thickness, will be required, and the measurement as to length should be made on the sound extremity. One of the pieces must be sufficiently broad to extend completely under the limb, and sufficiently long to extend from just above the middle of the thigh to below the calf of the leg, being edged off at either end. The next piece to be

fixed on the outer side of the under one, should extend from just above the hip to a little beyond the foot, and must be pierced with two holes at the upper end; the remaining piece should extend from about two-thirds up the thigh, to a little beyond the foot; being fixed to the inner side of the under piece, and connected with the outer piece at the lower end, a slanting support for the sole of the foot and about the same width, being fitted in, so that it will admit of the limb being extended to quite its full length; this being ascertained by measurement of the sound leg. The middle of the apparatus forms a kind of box. A soft handkerchief padded must now be placed between the thighs. At this stage the limb must be set. One person should hold the body of the sufferer firmly at the hips, whilst another grasping the leg just above the ankle by a gentle and steady pull, straightens the injured limb to the same length as the sound one; the broken ends of the bone being by this means brought into contact. The apparatus having been previously well padded with any soft material—even chaff or dried leaves will do—the broken limb, still kept on the stretch, should be gently placed in it. The foot must then be secured to the padded foot-board by means of a bandage or handkerchief, the heel being also well supported by the same or some similar application. The heel may be still further supported by means of a double tape sewed to the toe of a sock, previously put upon the foot; the tape being carried over the top of the foot-board, and tied to a nail or peg, fixed to the back. The ends of the band or handkerchief passed between the thighs are to be passed through the holes in the upper end of the piece of wood which extends along the outside of the thigh, and tied with sufficient firmness to keep the limb on the stretch. *This is the essential part of the treatment*—the foot bound to the foot-board, and the band tied through the holes in the upper part of piece just described, act against one another, and keep the limb extended. The upper end must next be secured by a band passed round the body, and the fixing of the apparatus is complete. It will be well, however, to fill up all the interstices between it and the limb by means of soft material stuffed in, and when this is done, as a further means of security, to fix one or two bandages or handkerchiefs round both apparatus and limb.

The above contrivance is a modification of the one most used by surgeons for the treatment of fractured thigh, but requires much less bandaging, and is, for this reason, preferable. In the usual form of long thigh splint, the entire efficiency of the arrangement depends upon the application of the bandage, and no unprofessional person is likely to put it on properly. The apparatus may be used for fractures of the upper part of the leg, as well as for the thigh. Another simple mode of treating fractures of the lower part of the thigh, or upper part of the leg, is

by means of two pieces of wood and a large cloth, such as a table-cloth, in each side of which one of the pieces is to be folded up, until there is just space left to contain the limb, which being set, and placed in the space so left, the boards are to be tied up to it on each side by means of handkerchiefs, or stout tapes. Again, the sound limb may be made to act as a splint to the broken one. Pads of some soft material should be placed between the most prominent points of each, such as the knees, ankles, great toes, etc.; and padded bands, two or three yards long, are to be wound round the legs as they are placed together, just above the ankle, and just below the knees. Or the broken thigh may be laid on a pillow, on its outer side, in the easiest position for the patient.

Under the former of the two last-mentioned modes of treatment, a short splint, extending to the length of the thigh, of wood, tree bark, or any other firm material, may be applied on the outer side, and will give additional support; under the last-mentioned, such a short splint may be used on each side.

In fractures of the leg, particularly of the lower portion of it, a different apparatus must be used, although in many respects the mode of management as regards padding, etc., is the same.

Should a person break a leg—that is, fracture the bone between the knee and the ankle—in any ordinary situation, the probability is that there would be immediate requisition for the attendance of a regular surgeon, and that the accident would be treated by him in his own mode. But limbs may be broken far away from skilled assistance; and it is in such cases that the swing mode of treatment becomes the most valuable to the sufferer, and the most easy to the unprofessional attendant. The principle of the *swing splint* is a semi-circular receptacle for the limb, proportioned of course to its size, which can be swung by means of bands of any sort to a cradle or framework made of a board, to which are fixed iron rods, across which runs the piece of iron or wood, this forming a support from which the splint, containing the leg, is hung. Of course, this framework may be made of any material that may be at hand, such as green wood, or any other of which an ordinarily suggestive mind may avail itself. Likewise the splint for the limb, may be formed of rough slats of wood tacked together, or of a piece of bark, or, indeed, of any sufficiently firm material that can be formed into the splint, and be strong enough to bear a support for the foot. This receptacle for the limb could be cushioned with dried leaves, moss, grass, or any soft material, and slung in its cradle with pieces of cord, if nothing better presented itself. The apparatus being ready, the fractured limb should first be arranged as straightly and comfortably as possible in its splint, and should then be slung in the cradle in the mode and position

most comfortable to the patient. It is scarcely requisite to point out, even to the unprofessional person, how great must be the comfort and ease to a sufferer from fractured leg to have the injured limb placed in apparatus which yields to every movement like a well-sprung carriage, even should the limb not be set in quite the best surgical mode. It does happen that sufferers from such accidents have to be taken long distances before they can reach professional aid. In such cases the swing splint, constructed by some intelligent person, upon the principles above enunciated, will be found of much value.

In short, the principles of the above apparatus are: A semi-circular receptacle for the limb, padded with some soft material; a support for the foot, also padded; a cradle as above described, and swing supports—cords or such like—by which the splint is swung from the cross-bar of the cradle; a cavity, formed or cut out of the splint where the heel rests.

In setting the limb the thigh must be grasped by one person, and the foot by the other. The easiest position for the limb will be with the knee bent.

Reference to the foregoing portions of this article, especially that on fractured thigh, will sufficiently explain the general management of these cases.

To recapitulate.—The first removal of a patient who has suffered a fracture should always be conducted with the care enjoined in the first part of this article. The bed for a patient suffering from fracture must always be a firm one. The adjustment and putting up of a fracture should be effected as quickly after the accident as may be, allowance being made for swelling, and if this becomes extreme, loosening of the apparatus resorted to. In setting, the bones above and below the injured one, not the injured one itself, are to be grasped; parts, such as the heel, etc., are to be relieved as much as possible from the effects of the continued pressure which they must necessarily undergo during the treatment. It must always be borne in mind, that whatever appliances are used in the treatment of fractures, they are all but different means to the one end—that of keeping the broken extremities of the bone in continued steady contact with as much ease to the patient as possible; that when this has been done for three or four weeks, lighter applications than those used at first may be employed, such as the starch bandage, etc.

In conclusion, the foregoing article will be of small benefit to those dwelling in the midst of civilization; but its hints—and our space admits of but little more—may prove invaluable to those dwelling, or who may be destined to dwell, in a thinly-peopled country, or in such situations as on board ship, in which fractures are far from being uncommon

accidents. Even if proper assistance be ultimately procurable, the intelligent management of a case for the first few days may be of the highest importance; and if it should happen, that throughout, it has been left to unprofessional management alone, even should a limb somewhat deficient in symmetry be the result, its cure is not likely to be more tardy or less painful, because those around are not in total ignorance of how it ought to be conducted.

Compound fractures are those in which there is a wound through the skin, permitting access of the external air to the seat of the fracture. The contingency is a truly serious one to be without the assistance of a surgeon. Sometimes the bone protrudes considerably through the skin, and its end requires to be sawn off before it can be returned to its proper position. The great object is to heal the external wound as quickly as possible, and probably as good a plaster as any will be a piece of linen soaked in the blood, and when this is separated by the discharge, the simple water dressing. (See ACCIDENTS, DISLOCATIONS, BANDAGES, DRESSING, ETC.)

FRAMBŒZIA, OR YAWS, *fram-be'-zhe-a* [Fr., from *framboise*, a raspberry], a disease of the skin, indigenous to Africa, the West Indies, and some parts of America. It consists of imperfectly suppurating tumors, which gradually increase in size until they become as large as, and somewhat resemble, a raspberry. The period during which the disease is in progress varies from a few weeks to several months. When it has reached its height, it usually continues for some time without undergoing much change, and then passes away. It seldom proves dangerous, and only affects the same person once.

FRAXINUS, *fraks'-e-nus* [from Lat. *frango*, I break, in allusion to its brittleness], the European flowering ash, a genus of the Nat. order *Oleaceæ*, consisting of about fifty species, mostly natives of Europe and North America. The sweet concrete exudation known as manna is procured by making incisions in the stems of certain species of *Fraxinus*, chiefly *F. Ornus* and *rotundifolia*, natives of Calabria, Apulia, and Sicily. Manna is a mild, agreeable laxative, very suitable for children, to whom it may be given in doses of 60 to 120 grains. It is, however, apt to produce flatulence. It owes its properties to a peculiar resin called mannite.

FRECKLES, *frek'-klz* [Ger. *fleck*, a spot], are small yellow or brownish spots which appear on the face, and sometimes on the neck, hands, or other parts of the body, especially of fair persons, or persons much exposed to the weather. Various applications have been proposed for their removal, and a liniment composed of lime-water and oil, with the addition of a little ammonia, is one of the best. Water, weakly

acidified with lemon-juice, is sometimes useful as a wash. (See EPHELIS, ALMOND PASTE.)

FREEZING, TO AVOID. (See COLD, ANIMAL HEAT.)

FRICTION, *frik'-shun* [Lat. *frico*, to rub], or rubbing a portion of the body, either with the hand or with some interposed material, is of much importance as a curative agent. Applied to the skin by means of rough towels, hair gloves, etc., it excites its nervous sensibility, and the circulation of blood through its capillary vessels. Friction with the hand in thickenings and congestion of parts beneath the skin is often of much service, and in none is its beneficial effect more obvious, than where the breasts are painfully distended with milk after childbirth. The various oils, etc., used along with friction, are generally secondary in their effects to the mechanical effect, and are chiefly serviceable in facilitating the movement of the hand; some however, are really beneficial; the stimulant applications by exciting, and the anodyne by soothing; moreover, some, such as cod-liver oil, turpentine, etc., appear to exert a specific effect. (See LINIMENT, ETC.)

FRICTIONAL ELECTRICITY. (See ELECTRICITY.)

FRIEDRICHSBALL BITTER WATER. (See MINERAL WATERS.)

FRIGHT. (See FEAR.)

FRINGE-TREE. (See CHIONANTHUS VIRGINICA.)

FROST. (See COLD.)

FROST-BITES, *frost'-bites*. These are quite common in the northern parts of this continent. The parts most likely to be attacked are the feet, hands, nose, ears and cheeks. The attack is often so singularly free from pain, that the victim is not aware of it until his attention is called to it. Owing to the stoppage of the circulation by the cold, the part, unless relieved by proper treatment, soon dies. The treatment consists in keeping the person away from the strong heat and applying cold in the shape of snow or cold water, rubbing the part vigorously until reaction takes place. After this has set in apply sweet-oil, coal-oil, lard, or lime-water and oil. If sores follow they must be dressed in the same way as burns. For slight frost-bites, putting the part in strong salt and water for half an hour will be found very beneficial. (See BURNS OR SCALDS, COLD, DRESSING, PETROLEUM, VASELINE, ETC.)

FROSTWORT. (See HELIANTHEMUM CANADENSE.)

FROZEN FEET, HANDS, FACE, ETC. (See FROST-BITES, COLD, PETROLEUM, VASELINE.)

FRUITS, *froots* [Lat. *fruor*, *fructus*, to enjoy]. The custom of serving fruits as the first dish at the breakfast table is a healthy one. Fruits should also be eaten freely at luncheon. The reader is referred to the individual articles on the various fruits. Apples must be classed

among the most wholesome fruits; their prevailing acid is the malic. When perfectly ripe they are wholesome for most persons, but, like fruits generally, should be eaten in the forenoon, and not after a mixed meal of meat and other things. When cooked they are aperient. (See *PYRUS MALUS*, OR THE APPLE TREE; CIDER, FOOD, DIET, LUNCHEON, STONE-FRUIT, ETC.)

FRYING, *fri'-ing*, is a mode of cookery very unsuitable for persons of weak digestion.

FUCUS VESICULOSUS, *fu'-kus ve-sik-u-lo'-sus*, sea-wrack, also called bladder fucus. This sea-weed is perennial, with leaf flat, smooth and glossy, from one to four feet long, from half an inch to an inch and a half broad, furnished with a midrib throughout its length. The plant grows upon the shores of Europe and of this continent, attaching itself to the rock by its expanded woody root.

M. Duchesne having given a trial to this fucus in inveterate psoriasis, in which it had considerable reputation as a remedy, found it of little value; but he observed an unexpected effect, that of diminishing fat without in other respects injuring the health; and was thus induced to try it as a remedy for morbid obesity. His anticipations of its efficacy in this affection were not disappointed. He employs the whole plant, either in substance or in the form of pill, in decoction, or in extract. It is not till two or three weeks after beginning with the remedy that its effects in diminishing the obesity begin to be perceived, and one of the first signs of its favorable action in this respect is the increase of the urine, and the appearance of a black pellicle on its surface. Dr. Godfrey tried the experiment on himself with satisfactory results, confirming the statements of M. Duchesne. Dose: of fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of solid extract, 8 to 15 grains; of pills, 3 grains each, 3 to 5 pills.

The above doses may be taken three times a day in the beginning of the treatment, and increased gradually to half a fluid ounce of the fluid extract—a quantity which will be borne in most cases without any derangement of the stomach. To obtain any marked results from this remedy, it must be used patiently for a term of weeks. (See CORPULENCE.)

FULL THROAT. (See GOITRE.)

FULNESS. (See PLETHORA.)

FUMIGATION. (See CONTAGION, DISINFECTANTS.)

FUMITORY. (See CORYDALIS FORMOSA.)

FUNCTIONAL DISEASE. (See DISEASE.)

FUNCTIONAL DISEASES OF THE HEART. (See HEART, DISEASES OF THE.)

FUNGUS, *fun'-gus* [Lat.], is a term applied to any luxuriant formation of flesh on an ulcer, commonly known as proud flesh. It is also applied to a disease of the structure of a part which enlarges, is soft and excrescential. *Fungus Hæmatodes*, or soft cancer, is a peculiar morbid growth, having a remarkable resemblance to the medullary substance of the brain, and hence sometimes called *medullary sarcoma*. In some instances its color is quite white, in others light red, and occasionally it has been found of a dark red color; it is extremely vascular in structure, and the coats of its vessels are remarkably delicate, whence result frequent hemorrhages. Extirpation is the only mode of treatment known to have any effect in this disease, and, as in ordinary cancer, this frequently affords only temporary relief. (See CANCER, PROUD FLESH.)

FUNIS, *fu'-nis* [Lat.]. The navel cord.

FUR, *fur* [Low Lat. *furra*], as an article of dress, may be either extremely beneficial or the reverse, according to the manner in which it is used. When worn over other clothing in the open air, or as a regular fixed article of clothing in itself, the bad conducting power of fur renders it one of the most efficient protectors against cold, or rather preservers of heat, we possess; but when it is used as an occasional article of dress, it is a dangerous one, and has proved so in the various forms in which it has been worn by females. When kept close to the skin—as of the neck or throat—for any length of time, it produces excited action and perspiration, which is liable to be suddenly checked the moment it is thrown back, and cold and sore throat are the consequences; very many cases of this kind occur, and the cause unsuspected, is repeated again and again with the same effect, laying the foundation perhaps of serious disease by the improper use of the very means employed to guard against it. Many females liable to cold and sore throat have been surprised how that liability has vanished with the laying aside of the use of fur round the throat. The change must, however, be made at first with caution. It is not, however, the fur which is at fault, but the uncertain mode of using it; moreover, its power of exciting the skin renders it a valuable agent when worn permanently next it, particularly upon the chest in winter, by persons with delicate lungs. It not only protects from cold, but keeps up mild counter-irritation. A prepared hare or rabbit skin, lined, makes as good a fur chest protector as any other.

FURUNCLE, *fu'-rung-kl* [Lat. *furunculus*], a boil. (See BOIL.)

FUSEL OIL, OR FOUSEL OIL. (See AMYL.)

G.

GALBANUM, *gal'-ba-num* [Lat.], a fetid gum resin used in medicine, internally as an antispasmodic, and externally as a stimulant and discutient application to indolent tumors and chronic swellings. It is imported from India and the Levant, having probably been brought down the Persian Gulf, and is usually met with in irregular tears about the size of a pea, agglutinated into masses. Its properties are similar to those of assafœtida, but it is less powerful. Botanists have as yet been unable to determine the plant yielding this resin. The compound pill of galbanum, now commonly called the compound pill of assafœtida, is made by heating together and stirring till of proper consistence, 2 ounces each of assafœtida, galbanum, and myrrh, with 1 ounce of treacle. Dose, 5 to 10 grains. Galbanum plaster is composed of 1 ounce each of galbanum, ammoniacum, and yellow wax, and 8 ounces of lead plaster.

GALIUM APARINE, *ga'-le-um a'-pa-rine*, or cleavers, a perennial plant, belonging to the Nat. order *Rubiaceæ*. It grows in moist places, both in Europe and the United States, and is known by the common names of goose-grass, gravel-grass, catchweed, and poor robin. It is a valuable refrigerant and diuretic and is beneficial in suppression of urine, inflammation of the kidneys and bladder, and in the scalding of urine in gonorrhœa. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 1 to 4 fluid ounces, 3 or 4 times a day. (See INFUSION.)

GALL, *gawl* [Ang.-Sax. *gealla*], the bile. (See BILE.)

GALL BLADDER, *gawl' blad'-dur* [Sax. *gealla*, gall; Lat. *vesicula fœllis*], in Anatomy, is an oblong membranous receptacle, situated on the concave side of the liver, under the right lobe. It is about the size of a small hen's egg, and resembles a pear in shape. It serves as a reservoir for the bile, which, when digestion is not going on, regurgitates through the cystic duct, and is retained for future use. The cystic duct connects the gall-bladder with the hepatic duct, which proceeds from the liver, and the two, when united, form the *ductus communis choledochus*, by which the bile is conveyed to the duodenum.

GALLIC ACID, *gal'-lik* [from *galls*]. This important vegetable acid exists ready formed in the gall-nut, in sumach, and in a large number of other astringent vegetables. It is employed medicinally as an astringent, being given internally in doses of 2 to 10 grains. It is used externally in the form of glycerine of gallic acid, composed of 1

ounce of gallic acid to 4 fluid ounces of glycerine. It has been found very useful in bleeding from the lungs, in excessive menstruation, in water-brash, and in bleeding from the nose. In the latter case a piece of cotton steeped in a strong solution of gallic acid, is inserted in the nostril.

GALLOPING CONSUMPTION. (See CONSUMPTION.)

GALL, OX. (See FEL BOVINUM PURIFICATUM.)

GALLS, OR GALL-NUTS, *gawlz*, are excrescences produced upon the twigs of a species of shrubby oak, by the prick of an insect, for the purpose of depositing its eggs. They are brought from the shores of the Levant, and from Asia. Galls are powerfully astringent, owing to the tannin, or astringent principle they contain, which, in its separated form is now largely used in medical practice. Gall ointment is a useful application in piles in persons of relaxed or enfeebled constitution, but is quite the reverse in those of full habit, in whom the piles are in a state of active inflammation. The best form of ointment is: galls, in very fine powder, 2 drams; opium, in powder, 1 dram; lard, 1 ounce; well rubbed up together. Infusion of galls is the best antidote to poisoning by tartrate of antimony.

GALL-STONES, *gawl'-stōnz*, are concretions formed from the peculiar crystalline ingredient of the bile—the cholesterine. The concretions are of every variety in point of size, up to that of a walnut; when small, the number, either passed by the patient, or found in the gall-bladder after death, is often very great. These concretions may, and often do, exist in the gall-bladder, without giving rise to any unpleasant symptoms; their presence only being discovered on examination after death; but should one of them from any cause, pass into the duct, it gives rise to most violent spasmodic pain, which continues with little intermission until the stone has descended into the bowel through the ducts.

The ordinary calibre of the gall-duct is about that of a goose-quill, and the stone is generally of much larger size; the operation therefore is often a protracted one.

Symptoms.—Symptoms of gall-stone often supervene suddenly; the person is seized with the most agonizing pain in the region of the gall-bladder; probably, there is severe shivering and vomiting, and these do not disappear till the stone has passed; there may or may not be jaundice, probably not, as long as the obstruction does not pass into the common duct and so stop the flow of bile from the liver. If jaundice comes on, the evacuations from the bowels become white and chalky in appearance. The fact of there being no fever present and that the pain caused by a passing gall-stone is relieved instead of aggravated, by pressure, is sufficiently indicative of the absence of inflammation. After the occurrence

of the above symptoms, it is always proper to examine the evacuations from the bowels, to verify the disease by finding the cause. Gall-stones are easily detected in the evacuations, as they float upon water.

Treatment.—When an individual is suddenly seized with symptoms of gall-stone, no time should be lost before applying hot applications over the seat of the pain, or getting the sufferer into a warm bath. Opium ought to be given at once; the first preparation at hand—probably laudanum or paregoric—in full and repeated doses. If laudanum is used, 30 drops may be given immediately, and the dose repeated by 20 drops at a time every half hour, or oftener, till the unbearable pain is subdued. As the retching is often severe, and liquids of every kind are vomited as soon as taken, pills of solid opium—1 grain each—are more likely to be retained, and are therefore preferable; they may not, however, be at hand in an unexpected attack. Persons who are liable to repeated attacks of gall-stone should keep these pills beside them. If the stomach will not retain the remedies, the opium must be administered by injection; a pint or more of gruel, with 40 drops of laudanum, repeated if requisite. Mustard plasters over the seat of the pain may be useful, but are much inferior as an application to the hot bran poultice, on the surface of which laudanum may be sprinkled. (See BRAN.)

The suddenness of the attack of gall-stone, and the agony of the pain, render it one of the diseases in which unprofessional persons may afford most valuable assistance by judicious management; and by following the above directions they will certainly give relief, perhaps from many hours of suffering, if medical assistance is distant. A person who has once suffered from gall-stone ought, of course, to be examined medically. (See BILE, OPIUM, PAREGORIC.)

GALVANISM, *gal'-van-ism*, the electricity of chemical action; voltaic electricity. (See ELECTRICITY.)

GAMBOGIA, *gam-bo'-je-a*, camboge or gamboge, a gum-resin prepared from a Siam tree, whose proper botanical classification is still unsettled. It is a hydragogue cathartic and anthelmintic. Its tendency to cause vomiting and griping may be obviated by combining it with other purgatives, as in the compound cathartic pill of the pharmacopœia, or by giving it in the liquid form largely diluted. It is used in dropsical affections, obstinate constipation, affections of the brain, and occasionally as a remedy for tape-worm. It should not be given during pregnancy, nor while there is any inflammatory condition of any of the abdominal organs, nor is it a proper cathartic for infancy and childhood. Dose of the powder, 1 to 5 grains; of the compound gamboge pill, 5 to 15 grains.

GAME, *game* [Ang.-Sax. *gamen*], wild animals used as food, the

flesh of which is for the most part easily digestible and suited to many persons on account of the less proportion of fatty or oily substances which it contains. Of course, game, like other articles of food, may be rendered hurtful, by sauces and modes of dressing. (See Food.)

GANGLION, *gang'-gle-on* [Gr.], is a small rounded or elongated nervous mass, of a reddish-gray color, situated in the course of the nerves. They are of two kinds, one forming part of the cranial system of nerves, and situated near the origins of many of the cranial and all of the vertebral nerves; the other forming part of the sympathetic system, extending in a series along each side of the vertebral column, and occurring numerous in other parts. They differ widely from each other in figure and size, some of them being large and conspicuous, while others may be almost termed microscopic.

Ganglion, in Surgery, is a small indolent fluctuating tumor, developed in the course of the tendons, and containing a semi-fluid secretion enclosed in a cyst. They sometimes form without any apparent cause, but generally they arise from some wrench or tension of the tendon. They are most frequently situated about the wrist, and the swelling is usually globular; but when much enlarged, it is rendered irregular by the pressure of the tendons. The treatment consists in rupturing the cyst and allowing the contained fluid to be extravasated into the cellular tissue, where it is speedily absorbed, whilst the cyst inflames and becomes obliterated. A common mode of rupturing them is either by firm compression with the thumb, or by striking the swelling sharply with some obtuse body, as the back of a book, the part being subsequently bandaged, and rest enjoined for a few days.

GANGLIONIC SYSTEM. (See NERVOUS SYSTEM, GANGLION.)

GANGRENE, *gang'-green* [Gr., from *grao*, I feed upon], is a term applied to the first stage of mortification, so called from its eating away the flesh. It is divided into two kinds, the moist and the dry; the former, called also inflammatory or acute gangrene, is that which is preceded by inflammation; while the latter, called also chronic or idiopathic gangrene, is that which takes place without any visible inflammatory action having preceded it.

Causes.—The most frequent causes of gangrene are violent inflammation, erysipelas, contusions, burns, cold, deficient circulation of the blood, or impaired nervous energy.

Symptoms.—When it results from high and active inflammation, there is at first severe pain in the part attacked, and generally a considerable degree of swelling. After a time, however, the part from being painful, loses all sensibility and becomes cold, the redness disappearing, and being replaced by an irregular dark color of the skin, in some parts

approaching to black, while in others it is of a dark brown or greenish hue. If there is a running sore, the discharge from it will cease; the cuticle is raised by vesications, from which, on breaking, there issues a bloody serum. The constitution sympathizes with these local changes; the inflammatory fever of the earlier period disappears, and is succeeded by great languor and debility; the pulse is weak, quick, irregular, and sometimes intermittent; the stomach is deranged, delirium frequently occurs, and hiccough is one of the most characteristic signs of the disease in its more advanced stage; the countenance also indicates the existence of great local and constitutional derangement, the features are collapsed and the eyes sunk. When the gangrene is not the result of high and active inflammation, the inflammatory or febrile symptoms are slight or altogether wanting; but there is the same discoloration of the skin, vesication, discharge of bloody serum, and morbid appearance.

Treatment.—In the treatment of this disease, during the active inflammatory stage, local bleeding with leeches, and also bleeding from the arm, if the strength of the patient warrant it; but care has to be taken to reduce the general tone of the system as little as possible. Soothing fomentations and warm poultices should be applied to the part, and as internal remedies, quinine, wine, and opium (which see) will be found most beneficial.

When the gangrene cannot be stopped in its first stages, then the separation of the mortified parts is to be expedited, which is best done by yeast or port-wine poultices, supporting the constitution at the same time. (See POULTICE.) When this cannot be done, the removal of the limb, if practicable and not contra-indicated by a too weakened state of the body, is the only chance of saving the patient's life. Gangrene resulting from severe cold, is remarkable for the little pain generally preceding, the part having frequently perished without the patient being aware of the circumstance. A part suffering from a severe degree of cold should first be rubbed with snow or a coarse towel, in order to restore the suspended circulation, avoiding at first any artificial heat, which might be the means of inducing inflammation. Gangrene may also arise from a diseased state of the blood-vessels, attended with debility of the constitution, a form of the disease commonly known as *gangrena senilis*. It rarely occurs except in advanced life, and usually attacks the lower extremities, proceeding from the toes upwards. Its progress is sometimes slow and sometimes rapid; in some cases it is attended with little or no pain, in others it is very painful. As the parts mortify, they become dry and hard. The constitution should be strengthened by the free use of quinine, opium, and port wine; and the part should be covered with lint moistened with camphorated spirits of wine, and the limb

wrapped in cotton. Hospital gangrene, or *phagedæna gangrenosa*, is a form of this disease which attacks open wounds or ulcers, and is so called from its appearing most frequently in crowded hospitals, and causing a fearful mortality among the patients. Its symptoms and treatment are similar to those already mentioned. (See MORTIFICATION.)

GAOL FEVER, *jale*, a form of typhus. (See TYPHUS FEVER.)

GAPING, OR YAWNING, *gape'-ing*, is a nervous affection, indicative of nervous exhaustion and depression of the circulation. Persons in health are, as is well known, liable to gape when tired; like other nervous affections, it is apt to give rise to imitation in others. Gaping is, however, a not unfrequent symptom of disease—functional or organic—particularly of the chest. Attacks of hysteria accompanied with fainting, or of spasmodic asthma with depression of the action of the heart, are often ushered in by gaping. Persons who suffer from disease of the heart are also liable to fits of gaping.

GARDEN ANGELICA. (See ARCHANGELICA.)

GARDEN CELANDINE. (See CHELIDONIUM.)

GARGET, OR POKE. (See PHYTOLACCA DECANDRA.)

GARGLES, *gär'-glz* [Lat. *gargarisma*, from Gr. *gargarizo*, I wash the throat], are liquid applications to the throat and upper part of the gullet, etc., used in affections of these parts. Gargles are too often used as astringents, particularly in the first stage of inflammation of the tonsils, etc., or sore throat. In these cases, the warm water, or gruel gargle, is a much better remedy, with the addition of a small quantity of vinegar. The common domestic gargle of sage tea and vinegar answers very well. As a general rule, in the first stages of sore throat it is better to use the simple soothing gargles, nearly as warm as can be borne; in the latter stages, when there is often much stringy phlegm about the throat, the more stimulating and astringent gargles will be useful. For the latter, from 4 to 5 drops of muriatic acid in the ounce of water is as good a form as any; or the infusion of roses with 10 to 15 drops of dilute sulphuric acid to the ounce. Another very useful gargle in cases of relaxed sore throat is made with 1 dram of alum, $\frac{1}{2}$ ounce of tincture of myrrh, and water sufficient to make up the pint. Cayenne pepper infusion is also used as a gargle. (See INFUSION, CAPSICUM.) In cases of chronic weakness of the throat, with tendency to frequent swelling and inflammation, a gargle of oak bark decoction, or of salt water, is of much service used every morning for some time. (See DECOCTION.) Gargling is effected by throwing the head back, and, consequently, the fluid back in the throat, and expelling the air through it from the lungs; it is thus worked, as it were, into every part of the throat.

In cases of relaxed throat with white patches, a gargle of borax

dissolved in water is often useful; the addition of a little cream of tartar will allow of more borax being dissolved in the water. The foul smell proceeding from certain ulcers of the throat will be removed by gargling with the following solution: permanganate of potash, 1 dram; water, 12 ounces.

Chlorate of potash is very useful and very popular as a gargle, especially for common sore throat, sore mouth, etc. It may be used in the proportion of 1 dram to 4 ounces of water. For further information concerning its uses as a gargle, see CHLORATE OF POTASH, SORE THROAT.

GARLIC. (See ALLIUM, ONION.)

GAS, *gas* [Ang.-Sax. *gast*, breath, spirit], is an elastic fluid, which is permanently aeriform at all ordinary temperatures, being distinguished from vapors, which are only temporarily elastic and aeriform. (See AMMONIA, CARBONIC ACID, CHLORINE, HYDROGEN, LAUGHING GAS, NITROGEN, OXYGEN, COAL-GAS.)

GAS, ACCIDENTS FROM. (See COAL-GAS.)

GASTRIC FEVER. (See TYPHOID FEVER.)

GASTRIC JUICE, *gas'-trik* [Gr. *gaster*, the stomach], is the name given to the digestive fluid contained in the stomach, and which is secreted by the gastric glands on the introduction of food or other foreign substance. It is a clear, colorless, transparent fluid, inodorous, a little saltish, and very perceptibly acid. Its most singular component is a peculiar organic substance called pepsin, to which its special properties are chiefly owing. The use of the gastric juice is to dissolve the various kinds of food in the stomach, reducing the albuminous and gelatinous portions of it to a state fit for absorption into the system. It has also an antiseptic property, as it suspends putrefaction, and restores the freshness of tainted meat. (See DIGESTION, STOMACH, PEPSIN.)

GASTRITIS, OR INFLAMMATION OF THE STOMACH, *gas-tri'-tis* [Lat.], occurs in two forms, one the acute, the other the chronic. The acute form, arising spontaneously, is an exceedingly rare disease, so much so that the celebrated Prof. Watson, author of "Watson's Practice of Medicine," declares he never saw it.

Causes.—It is almost invariably caused by mechanical injury, especially by swallowing the vegetable or mineral acids, or other irritant and corrosive drugs.

Symptoms.—Burning pain, increased by swallowing, and constant nausea or vomiting, hiccup, tenderness and distention of the whole abdomen. The mind becomes oppressed, the spirits cast down, and the pulse small and thready. The patient soon becomes faint, the body cold, and his skin pale and bathed in cold perspiration, while the weakness becomes

extreme. Thirst is urgent and the bowels are costive, except in the case of corrosive poisoning, when there is frequently diarrhœa. The pain is increased by pressure on the stomach, and by every movement of the patient. Its progress is rapid, and it may destroy life in twenty-four, and sometimes in twelve hours.

Treatment.—If the pain be very severe, half a dozen leeches may be applied over the stomach, and when removed, the bites may be covered with a light, soft, warm, linseed meal poultice, and the patient be kept in a horizontal position. Cold water in small quantities, if retained, will do no harm, and will prove grateful; if the water be rejected, small pieces of ice may be allowed to dissolve in the mouth. Purgatives must not be given by the mouth, but the bowels be cleared out by injections of warm water, or soap and water. After the bowels have been moved, injections of laudanum and starch (30 or 40 drops of the former to 3 or 4 ounces of the latter) do very much good. They relieve the pain and check the vomiting. If the stomach be capable of retaining anything, food in the shape of barley water, arrowroot or gruel may be given, and $\frac{1}{2}$ grain of powdered opium every four hours.

CHRONIC INFLAMMATION OF THE STOMACH is a very common disease, and gives rise to all the symptoms of indigestion.

Causes.—It may follow an acute attack or be the result of excessive eating or drinking, as well as of long-continued abstinence. Arsenic, or corrosive sublimate in small quantities may be the exciting cause, also anything that interferes with the passage of the food into the bowels, as stricture, or cancer of the smaller end of the stomach.

Symptoms.—These are pain, flatulence, sour eructations, a sense of weight and oppression after meals, nausea and vomiting. The pulse is quick and full, the tongue red and glazed. There is often a troublesome water-brash, and great prostration of strength.

Treatment.—Strict attention must be paid to the diet of the patient. All kinds of farinaceous food, such as arrowroot, gruel, tapioca, rice, sago, with milk, jellies and beef-tea, may be allowed. Whatever food is given should be given in very small quantities, not more than 1 or 2 tablespoonfuls at a time, and often. If the pain be severe, it may be alleviated by a mustard blister to the epigastrium, or by counter-irritation with tartar emetic ointment. White bismuth, in doses of 8 or 10 grains, either alone or combined with 5 grains of the compound kino powder, may be given with advantage two or three times a day. If the bowels are sluggish, from 3 to 5 grains of the compound soap pill may be given once a day. Tepid milk alone has frequently effected a cure.

Preventive treatment.—Chronic inflammation of the stomach, inas-

much as it is a disease very frequently caused by errors in eating and drinking, may almost invariably be prevented by a due regard for the laws which should guide us in these respects. Irregularity in eating, either in regard to time or quantity, imbibing large draughts of either hot or cold liquids during meals, taking very active exercise immediately after eating, eating or drinking while very warm, should be scrupulously avoided, especially by those in whom there is a tendency to this trouble, and the most rigid observance of regularity and moderation be faithfully enforced. (See DYSPEPSIA, DIGESTION, DIET, MEALS, FOOD, ETC.)

GASTRODYNIA, *gas-tro-din'-e-a*, the stomach colic, or pain in the stomach. (See CRAMP, COLIC.)

GAULTHERIA PROCUMBENS, *gawl-the'-re-a pro-kum'-benz*, or wintergreen, a perennial shrub belonging to the Nat. order *Ericaceæ*. It grows in all parts of the United States and Canada, and is known in different parts by the common names, partridge berry, deer berry, grouse berry, and mountain tea. All parts of the plant are used medicinally. It is stimulant, aromatic, and astringent, and has been found useful in chronic mucous discharges, as a stimulant in debility, and as a carminative in the colic of young infants. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 1 to 2 fluid ounces; of the volatile oil, 1 to 5 drops, as frequently as may be found necessary. (See INFUSION.)

GAYFEATHER. (See LIATRIS SPICATA.)

GELATINE, OR GLUE, *jel'-a-tin* [Spanish, *gelatina*, from the Lat. *gelo*, I freeze], is an azotized component of animal bodies, of simpler constitution than the azotized albuminous compounds. It may be extracted from tendons, skin, etc., by long boiling, and from bones by dissolving out their earthy matter by acids; it occurs pure in many fishes, the air-bladders of which are formed of gelatine; isinglass, so well known as a jelly-making compound, being the prepared swimming or air-bladders of the sturgeon, cod, ling, etc. The gelatine sold as such is generally prepared from bones. Many persons have a prejudice against this gelatine, and imagine it not so good as that which they extract from calves' feet, etc. As regards the amount of nutriment, it must be precisely the same, and as there is no reason to believe that the manufacture is otherwise than properly conducted, it is a pity that many should deprive themselves and others of so convenient an addition to sick cookery. It is much used now for the purpose of covering pills, and for making capsules to enclose nauseous medicines.

GELSEMIUM SEMPERVIRENS, *jel-se'-mi-um sem-per-vi'-renz*, or yellow jessamine, a perennial plant belonging to the Nat. order *Apocynaceæ*. It abounds throughout the Southern States, being extensively cultivated as an ornamental vine, and is known by the common

names, wild jessamine, bignonia, and woodbine. The root is the part used in medicine. It is an excellent febrifuge, and has proved very efficacious in nervous and bilious headache, colds, inflammation of the lungs, hemorrhage, and cholera, and is said to subdue in from two to twenty hours, the most formidable and complicated, as well as the most simple fever, incident to our country and climate. When an overdose has been taken, the proper antidotes are brandy, quinine, or aromatic spirits of ammonia. Dose: of the fluid extract, 3 to 10 drops; of the tincture, 5 to 20 drops, repeated every two, three or four hours.

GENERAL HEALTH, *jen'-er-al helth* [Lat. *generalis*; genus, a kind]. By the term is meant, the state of the body and its functions collectively, in contradistinction to the condition of any special portion of the frame. The state of the general health is always an important consideration, with respect to local maladies, both as regards their treatment and ultimate prospects. The latter must always be more serious when the general health begins to suffer. (See DISEASE, HEALTH.)

GENERATION. (See STERILITY.)

GENTIAN. (See GENTIANA.)

GENTIANA, *jen-she-a'-na*, the typical genus of the Nat. order *Gentianaceæ*. The officinal gentian, so well known for its bitter tonic properties, is the root of *G. lutea*, a native of the mountains of Central and Southern Europe. Gentian possesses, in a high degree, the tonic powers which characterize the simple bitters. It excites the appetite, invigorates digestion, and moderately increases the temperature of the body and the force of the circulation. It acts without causing any astringency; indeed, is occasionally laxative. It may be used in all cases of pure debility of the digestive organs, or where a general tonic impression is required.

Dyspepsia, gout, amenorrhœa, hysteria, scrofula, intermittent fevers, diarrhœa, worms, are among the many affections in which it proves useful; but it is the condition of the stomach and the system generally, not the name of the disease, which must be taken into consideration in prescribing it. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the compound fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 3 to 15 grains; of the tincture, 1 to 2 teaspoonfuls; and of the infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

GENTIANA QUINQUEFLORA, or five-flowered gentian, a valuable tonic and antiperiodic. Used largely as a substitute for quinine in malarial diseases, and as a tonic in atonic conditions of the digestive apparatus and derangement of the biliary organs. Dose of the fluid extract, 10 to 30 drops.

GEOGRAPHICAL DISTRIBUTION OF DISEASE, *je-o-graf'-e-kal* [Lat. *geographicus*]. As plants and animals vary according to different degrees of latitude, so also do the characters of diseases differ, and people are influenced in regard to their health in proportion as they migrate from land to land. It is a fact, also, that certain miasmatic and other diseases are so completely under the influence of temperature that they are capable of being arranged systematically in zones. The diseases susceptible of being thus classified, are chiefly yellow fever, the plague, typhus and typhoid fevers, and cholera. These zones may be broadly indicated as the tropical, temperate and polar zones.

I. THE TROPICAL ZONE.—The limiting line of this zone ascends somewhat in summer when the sun is north of the equator, and descends again in winter, when the sun is to the south of it. The class of diseases which characterize this zone are the worst forms of malarious fevers, dysentery, diarrhoea, cholera, yellow fever, and hepatic affections in their most aggravated forms. The fevers of this tropical disease-realm prevail in their greatest intensity in the vicinity of marshes, the borders of lakes and the shores of rivers and the sea. The great centres of these malarious diseases in the different continents are: (1) In America; the shores of the Gulf of Mexico, the West India Islands, and the northern portion of South America. (2) In Asia; India, China, Borneo, and Ceylon. (3) In Africa; the countries round the Gulf of Guinea, Madagascar on the west, and Mozambique on the east, and Algeria and islands of the Mediterranean on the north.

II. THE TEMPERATE ZONE.—The regions where diseases of this type prevail correspond to the north and south temperate zones. It embraces the most healthy regions of the world, in which the prevailing causes of ill-health are mostly due to the condensation of people in towns and cities. Nearly every type of disease has a representative in this realm. Typhus and typhoid fever prevail between the parallels of 44° and 60° in Western Europe, and between 30° and 50° in America. Yellow fever prevails on the southern shores of Spain, the northwest coast of France, Northern Italy, and along the shores of the Mississippi river, and portions of the Atlantic coast in America. Intermitent and remittent fevers prevail in the Netherlands, Sweden, Central Italy, the northern, middle and western parts of the United States, and in the Dominion of Canada, and generally where marshy, undrained lands exist. Small-pox prevails where vaccination has not checked its ravages; and consumption and rheumatism prevail almost everywhere. Where the people are crowded together in large cities, dysentery, diarrhoea, cholera, and other of the tropical diseases prevail sometimes, especially when proper sanitary precautions are not taken for their prevention.

III. THE POLAR ZONE.—In this zone catarrhal affections, influenza, scurvy, erysipelas, diseases of the skin and digestive organs, prevail. Its southern limits are the northern boundaries of the previously described zone. Commencing on the western shores of North America, above Sitka, it extends southward across the district of the Canadian Lakes, sinking south and east as far as Boston and New York. Thence it crosses to Europe, ascending to the borders of Iceland, whence it sinks toward Norway and Sweden, and, running above St. Petersburg and Moscow, crosses into Siberia.

GERANIUM MACULATUM, *je-ra'-ne-um mak-u-la'-tum*, or cranesbill, a perennial plant belonging to the Nat. order *Geraniaceæ*. It is commonly known by the names crowfoot and alum root. It is a native of the United States, growing in low grounds and open woods all over the country. The root is the part used in medicine, and yields with alcohol an extract called *geraniin*. It is astringent and tonic. As an astringent it contains considerably more tannin than kino, and may be employed in all cases where astringents are indicated. It is a superior agent in the first stages of dysentery, diarrhœa, and cholera morbus. It is efficacious in the treatment of hemorrhages, the whites, gleet, diabetes, etc. The tincture is an excellent local application in sore throat and ulceration of the mouth. It may be applied to ulcers externally, and in combination with alum and gum arabic, it is a good application to bleeding wounds and in bleeding from the nose. Good as a wash and gargle in relaxation of the uvula, and affections of the mouth and throat, as well as an injection in the whites and gleet. The absence of unpleasant taste, and of all other offensive qualities, renders it peculiarly serviceable in the cases of infants, and of persons of delicate stomachs. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 3 to 15 grains; of the powdered root, 20 to 30 grains of the decoction, 1 to 2 fluid ounces. (See DECOCTION.)

GERARDIA, *je-rär'-de-a*, or feverweed, an American perennial plant of the Nat. order *Scrophulariaceæ*, commonly known as American fox-glove. It grows from two to three feet high, and is found in dry ridges from Canada to Georgia. All parts of the plant are used medicinally. It is diaphoretic, antiseptic, and sedative. The warm infusion, in doses of from 1 to 3 fluid ounces, produces very free perspiration in a short time. It is used for this purpose in febrile and inflammatory diseases. (See INFUSION.)

GERMAN LEOPARD-BANE. (See ARNICA.)

GERMAN TINDER. (See AMADOU.)

GESTATION, OR PREGNANCY. (See PREGNANCY.)

GESTURES IN SICKNESS. (See SYMPTOMS.)

GEUM RIVALE, *je'-um ri'-va-le*, or avens root, a perennial plant belonging to the Nat. order *Rosaceæ*. It grows in moist meadows all over the United States, and is commonly known as water avens, purple avens, and throat root. The root is tonic and astringent, and has been found of use in diarrhœa and dysentery, the whites, dyspepsia, consumption and intermittent fever. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, "1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

GIANT SOLOMON'S SEAL. (See CONVALLARIA MULTIFLORA.)

GIDDINESS, DIZZINESS, OR VERTIGO, *gid'-de-nes* [Sax. *gidig*; Lat. *vertigo*, from *verto*, I turn], is a dizziness or swimming of the head, with more or less of mental confusion, and a loss of power to balance the body. The objects around in many cases appear to be moving about in different directions, often conjoined with a sense of dimness or darkness, or with sounds of bells or drums in the ear. It generally comes on suddenly, and is symptomatic of various diseases, arising, as it does, from some disturbance or debility of the nervous power. It generally precedes a fainting fit, or an attack of apoplexy; attends fevers, inflammations and many other diseases, and not unfrequently arises from some organic disease of the brain or heart. It frequently arises from indigestion, or may be caused by some poison in the blood, as alcohol or opium, or, indeed, by anything that greatly alters the circulation of the blood through the brain.

Treatment.—In most cases it may be traced to weakness or nervous debility, and hence the treatment should be to strengthen the system by means of tonics, particularly iron, by nourishing diet, change of air, exercise, bathing, and the like. A fullness of the blood-vessels of the brain may frequently be owing to lack of tone in the vessels, arising from weakness rather than from any preternatural determination of blood to the head. In persons, however, of full habit of body, whose heads are hot, and whose arteries are pulsating with undue force, a spare diet, purgatives, blisters behind the ears, or setons in the nape of the neck, will form the proper treatment. Frequently giddiness, when arising from indigestion, will be got rid of by administering a brisk purgative. (See TONICS, CATHARTICS, SETON, DYSPEPSIA.)

GILLENIA TRIFOLIATA, *jil'-le-ne-a tri-fo-le-a'-ta*, or Indian physic, a perennial plant about two or three feet in height, belonging to the Nat. order *Rosaceæ*. It grows in woods, gravelly soils, and in moist and shady situations from Canada to Florida. The bark of the root is the part used in medicine, and should be gathered in autumn. It contains an active principle called *gellenin*, which, in doses of $\frac{1}{2}$ grain, is sometimes used in medicine as an emetic.

Indian physie is emetic, cathartic, sudorific and expectorant. In small doses it is tonic, and resembles ipecac in its mode of action. This agent has been used with considerable success in suppressed menstruation, rheumatism, dropsy, habitual costiveness, dyspepsia, worms, and in intermittents. In all cases where the object is to produce vomiting, it is recommended as a safe and efficacious medicine.

The dose of the powder as an emetic is 20 to 25 grains, repeated at intervals of half an hour. Dose, of fluid extract, as an expectorant, etc., 4 to 12 drops; as an emetic, etc., 15 to 30 drops.

GIN, *jin* [From Fr. *genievre*, juniper], the well-known liquor, also known as Geneva, or Holland, contains oil of juniper, and when first introduced was used simply as a diuretic medicine. It ultimately, however, became an object of trade and of general—too general—use. It certainly often increases the flow of urine in a marked degree.

GINGER. (See ZINGIBER OFFICINALE.)

GINGER, WILD. (See ASARUM.)

GINSENG. (See PANAX QUINQUEFOLIUM.)

GLAND, *gland* [Lat. *glans*], in Anatomy, is an organ of the body, composed of blood-vessels, nerves, and absorbents, in which secretion is carried on; as the lachrymal, mammary, and salivary glands. Glandular swellings are not unfrequent, especially in weak and scrofulous persons. They occur about the neck, or other parts of the body, are comparatively painless, and of very slow growth, with little or no tendency to suppuration. In such cases, the system should be strengthened with tonics, as iron and quinine, nourishing diet, and pure air. Cod-liver oil is also usually of great service, and where practicable, sea-bathing should be adopted.

When there is no inflammation, and the glands merely remain indurated, iodine is a very useful application in producing absorption, as by painting the part with tincture of iodine, or applying the red iodide of mercury ointment, diluted with lard. Glandular swellings also occur in certain diseases, as scarlet fever, etc.

GLANDERS, *glan'-durz* (from gland), sometimes called farcy, the malignant disease to which the horse, the ass, and the mule are subject, is also capable of being communicated to man, certainly by inoculation, perhaps by simple contact with the skin. Should any of this discharge come in contact with an abrasion of the skin, or even get lodged on the sound skin, as of the hands, or be snorted upon the nostrils or eyes of man, it is capable of originating this horrible disease. In from two days to a week after inoculation, the attack is ushered in with fever symptoms, or by vomiting and diarrhœa, small tumors which ulcerate and discharge form under the skin in various situations, and there is yellow

viscid discharge from the nostrils, etc. Almost every case of this fearful disease has proved fatal.

GLANDULAR SWELLINGS. (See GLAND.)

GLASSES. (See VISION.)

GLAUBER'S SALT, *glow'-burz* [after Glauber], in Chemistry, the old name for sulphate of soda. (See SODA.)

GLAUCOMA, *glaw-ko'-mā* [Gr. *glaukos*, azure], an opacity of the vitreous humor, producing imperfect sight, and sometimes total blindness. It is liable to be mistaken for a cataract. If the eye is examined by a favorable light, there appears a greenish spot behind the pupil. It is often hard to distinguish, and, as a rule incurable, though not always.

GLEET, *gleet* [Ang.-Sax. *glidan*, to glide], a mucous discharge from the urethra, commonly a sequel of gonorrhœa, or clap. For treatment etc., see GONORRHŒA.

GLOBULES OF THE BLOOD. (See BLOOD.)

GLOBULIN, *glob'-u-lin* [Lat. *globulus*], the substance which forms the nucleus of the red blood globules.

GLOBUS HYSTERICUS, *glo'-bus* [*hysterical ball*], is a symptom in hysteria, marked by the feeling of a ball rising upwards to the throat, frequently attended by a feeling of suffocation. It is very common with persons of a nervous temperament, and is occasioned by the air ascending in the œsophagus being prevented by spasm from reaching the mouth. (See HYSTERIA, NERVOUS DISEASE.)

GLOSSITIS, OR INFLAMMATION OF THE TONGUE. (See TONGUE.)

GLOTTIS, *glot'-tis* [Gr.], in Anatomy, is the name given to the superior opening of the larynx, situated immediately behind the root of the tongue and covered by the epiglottis. (See LARYNX.)

GLUCOSE, *glu'-kose*, grape sugar, that form of sugar which is found in acid fruits and plants. It is the form in which sugar is generally found in diabetes and hence it is sometimes called diabetic sugar.

GLUE. (See GELATINE.)

GLUTEN, *glu'-ten* [Lat.], in Chemistry, a characteristic ingredient in cereal seeds. If the flour of wheat or rye be made into a paste with water, and washed in a bag of fine linen, the starch is carried down by the water along with the sugar and dextrine; the remaining gray, sticky and mucous mass is gluten. Gluten may be assumed to be the principal flesh-forming substance contained in wheat.

GLYCERINE, *glis'-er-in* [Gr. *glukus*, sweet], in Chemistry, $C_6H_8O_6$, the sweet principle of oils and fats, which is separated from them during the process of saponification. It is a viscid, colorless liquid of a sweet taste, soluble in water and alcohol in all proportions, but sparingly so in

ether. In medicine, it is used in preference to oil or other fatty matters, to keep sores in a soft condition, on account of the ease with which it may be washed off. It is a useful application to chapped hands, and it is also employed as a solvent for various medicines, as starch, borax, carbolic, gallic, and tannic acids. Glycerine of starch is formed by rubbing together 1 ounce of starch and 8 fluid ounces of glycerine till they are intimately mixed, then transferring to a porcelain dish and applying a heat gradually raised to 240°, stirring constantly till a translucent jelly is formed. In the other cases the proportions are 4 fluid ounces of glycerine to 1 ounce of borax, etc.

A glycerine ointment useful for chapped hands and lips, and all excoriations of the skin, is made as follows: Melt together spermaceti, $\frac{1}{2}$ ounce, white wax, 1 dram, with oil of almond, 2 ounces; put these into a Wedgewood mortar and add 1 ounce of glycerine, rubbing together until well mixed and cold.

In the baldness following debilitating diseases, the following has been applied to the scalp with much benefit: Aromatic spirit of ammonia, 1 dram; glycerine, $\frac{1}{2}$ ounce; tincture of cantharides, 1 dram; rosemary water, 8 ounces. In partial deafness, accompanied with a dry, shining appearance of the internal ear, glycerine dropped into the passage or introduced on a piece of cotton, has been productive of much good.

GLYCYRRHIZA GLABRA, *glis-er-i'-za gla'-bra*, or liquorice root, is a perennial plant belonging to the Nat. order *Leguminosæ*. It is an inhabitant of Southern Europe, where it is known by the names of sweet-wood and Spanish root. It is emollient, demulcent and nutritive, and by its action on the mucous surfaces, lessens irritation. This property has rendered it very beneficial in coughs, catarrh, and irritation of the urinary organs. The powdered root has been found capable of almost entirely disguising the taste of quinine. Dose: of the fluid extract, 1 to 4 teaspoonfuls; infusion, 1 to 4 fluid ounces. (See INFUSION.)

GNAPHALIUM MARGARITACEUM, *na-fa'-le-um mar'-ga-rit-a'-se-um*, or life-everlasting, a plant belonging to the Nat. order *Compositæ*. It grows on dry hills and in woods throughout the United States. It is anodyne and astringent, and has been found beneficial, internally, in diarrhœa, dysentery and pulmonary affections, and externally in sprains, bruises, boils and painful swellings. Dose: of the fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; infusion, 1 to 3 fluid ounces. (See INFUSION.)

GOAT'S MILK, *gotes* [Ang.-Sax. *gat*], is an excellent nutritious article of food in certain cases of great debility, and especially in consumption, where there is disease of the bowels. It may be artificially made as follows: Take 1 ounce of fine chopped suet, and put it in a

muslin bag ; boil it slowly in a quart of new milk ; sweeten with white sugar.

GODFREY'S CORDIAL, *god'-freez*, is a well-known quack medicine, frequently given to children in order to soothe them and keep them quiet. When used indiscriminately, as it commonly is, it often causes much mischief, and even sometimes occasions death. This is owing to opium which it contains.

GOITRE, OR BRONCHOCELE, *goi'-tur* [Fr. *goitre*, probably a corruption of Lat. *guttur*, the throat]. This disease consists of enlargement or hypertrophy of the thyroid gland, which is placed in front of the windpipe. It is much more common in chalky districts, and is very frequently seen in Switzerland. From it being a common affection in Derbyshire, England, it has been called the Derbyshire neck.

Causes.—This affection was for a long time supposed to be due to some abnormal condition of the atmosphere ; but has since been proved to arise from drinking water contaminated with chalk.

Symptoms.—The lobes of the gland are more distinctly marked, and rise with the larynx and pharynx in the act of swallowing. This enlargement may depend upon various morbid conditions—thus, it may be due to inflammation, and to cancerous or cartilaginous deposits ; sometimes it is the result of simple hypertrophy, having no malignant tendency ; and in rare cases, it is due to bony deposits. Bronchocele, besides being unsightly, generally affects the processes of respiration and swallowing, and in some cases impedes the circulation of the blood. It is much more common in women than men, and frequently some disorder of the uterine functions is present at the same time ; in some cases the disease is hereditary, and in very rare instances children have been born goitrous.

Treatment.—The patient should be removed from the chalky district, and iodide of potassium freely given.

Take of Iodide of potassium.....Half a dram.
Bicarbonate of potash.....Twenty grains.
Fluid extract of cinchona....Half an ounce.
Pure water.....Five and a half ounces.—*Mix.*

Give 2 tablespoonfuls three times a day.

While the patient is taking this medicine internally, she should paint the enlargement over with compound tincture of iodine, or rub into it a small piece of the compound iodine ointment every night and morning. When the health is much impaired, cod-liver oil and iodide of iron may be given together, thus :

Take of Cod-liver oil.....One ounce.
Syrup of the iodide of iron.....Two drams.—*Mix.*

Give two teaspoonfuls three times a day.

Several surgical operations have been proposed to relieve this troublesome affection; but none of them have met with sufficient success to warrant its repetition. Thus, a seton has been passed through the enlarged gland, the arteries nourishing its substance have been tied, and the whole gland has been extirpated.

GOLD, *gold* [Ang.-Sax. *gold*], symbol Au. (*aurum*); equiv. 197; spec. grav. 19.3. Pure gold for chemical purposes may be obtained by dissolving standard gold in 1 part of nitric and 4 parts of hydrochloric acid. The solution is diluted and filtered, and evaporated almost to dryness, to expel the excess of acid. The remaining salt is then boiled with a solution of sulphate of iron, which precipitates the gold as a dark bluish-purple powder which is subsequently washed with water and hydrochloric acid. Gold, in its ordinary metallic form, has a reddish-yellow color, but when very much extenuated it transmits a green light. When pure it is nearly as soft as lead, and is the most malleable and ductile of all metals, but is inferior to many in its tenacity. It does not combine directly with any of the non-metallic elements, except chlorine, bromine, fluorine, and phosphorus. The oxygen acids do not combine with either of its oxides, and the only way in which the chloride can be formed is by dissolving it in hydrochloric acid, to which some oxydizing substance has been added, such as nitric acid, chromic acid, or binoxide of manganese. Selenic acid acts upon it by oxidation, its acid being converted into selenious. The hydrated alkalies do not act upon gold, except in a strong current of air, when auric acid is formed, which combines with the alkali. The higher alkaline sulphides dissolve it in the form of tersulphide. The terchloride of gold, AuCl_3 , is made by dissolving metallic gold in aqua regia. It is very soluble in water and alcohol, and still more so in ether. The ethereal solution is the *aurum potabile* of the ancients. Terchloride of gold has occasionally been used as a medicine in syphilis, scrofula, and rheumatic affections but it is mainly employed as a test for atropia and other alkaloids.

GOLDEN OINTMENT, *gole'-dn oint'-ment*, is a compound of sulphuret of arsenic and spermaceti ointment, and is a good application for the lids of inflamed and sore eyes.

GOLDEN RAGWORT. (See *SENECIO AUREUS*.)

GOLDEN ROD. (See *SOLIDAGO ODORA*.)

GOLDEN SEAL. (See *HYDRASTIS CANADENSIS*.)

GOLDEN SENECIO. (See *SENECIO AUREUS*.)

GOLD THREAD. (See *COPTIS TRIFOLIATA*.)

GONORRHEA, *gon-or-re'-a* [Gr. *gone*, semen, and *reo*, to flow], is an inflammation of the mucous membrane of the urethra, produced by a specific poison, and accompanied by a peculiar discharge. The essential

nature of the poison is still unknown, but it appears to have a predilection for mucous surfaces, and especially for that of the genito-urinary organs. From a few hours, to four or five days, elapse between the exposure to the contagious matter and the full development of the results.

Causes.—This disgusting disease can only be caused by direct contact with the poison before mentioned, either during cohabitation or by direct inoculation, in which case it may attack the extremity of the rectum, the nose or the conjunctiva of the eye, sometimes destroying sight in twenty-four hours. It is communicated from one sex to the other.

Symptoms.—These are divided into three stages. In the first stage there is merely an intense itching of the orifice of the urethra, and the discharge of a thin, whitish fluid. In the second, or inflammatory stage of the disease, the discharge becomes thick and purulent, the genital organs and the parts in the vicinity become swollen and exquisitely tender, and the urine is passed by several small streams, accompanied by great pain; the nights are marked by almost entire loss of sleep, and the presence of a very bad condition, known as chordee, which is a painful contraction of the frænum or cord of the penis. In the third stage these active symptoms have all abated, and there is merely a thin discharge, partly mucus and partly pus, and known as gleet. If proper care and attention are paid to the disease, it will get well in the course of two or three weeks; but when it is neglected it will continue for many months, and end in fistulous sores, and often in death; hence the advisability of early consulting a physician. Mismanagement of this disease, which so often occurs in treatment by the unprofessional, is always attended by the most baleful effects; therefore, trusting to domestic treatment or resorting to advertising quacks (*all* who advertise must be designated as such), is dangerous in the extreme. When gonorrhœa attacks the female, the mucous membrane of the vagina and uterus are the parts usually affected, but the other symptoms are the same as in the male. The same general treatment is required in both sexes. In the female, however, there are other discharges which may easily be mistaken for this, and great care should be exercised lest the reputation of an innocent woman should be tarnished. This disease is sometimes complicated with the more horrible symptoms of syphilis or venereal poisoning.

Treatment.—Before the inflammatory stage has set in, the disease may frequently be cut short by the painful agency of injecting into the urethra, every four hours, a syringeful of a solution made by dissolving 2 grains of nitrate of silver (lunar caustic) in 8 ounces of water. If the discharge becomes bloody the nitrate must be discontinued, and sulphate

of zinc (white vitriol) 5 grains to 1 ounce of water, be substituted instead, until the discharge ceases. At the same time the bowels must be kept open with a mild aperient, when necessary, and all exercise and stimulants be avoided. In the inflammatory stage the patient must be kept absolutely at rest, all stimulants avoided, low diet enforced, and injections discontinued. The patient's drinks should be linseed tea, barley water, slippery elm tea, etc. It is important to keep the bowels open with 3 or 4 grains of calomel, every alternate night, followed by a dose of castor-oil in the morning. A hip-bath of the temperature of 80° is advisable, at least once a day. As soon as the fever has subsided, resort may be had to the injection of sulphate of zinc mentioned above, while 10 drops of balsam of copaiba, or $\frac{1}{2}$ a teaspoonful of tincture of cubeb, should be taken three or four times a day. Copaiba is usually administered in capsules, to avoid the unpleasant taste. Chordee may be overcome by 10 grains of Dover's powder each night; 10 to 15 grains of lupulin at bed-time, will answer the same purpose. The gleet that follows is often a very tedious affair, and can only be cured by a long course of treatment and very temperate habits of living. The mineral waters of Sparta, Wisconsin, are remarkable for their efficacy in gleet.

Preventive treatment consists in a rigorous observance of the seventh commandment. (See BALSAM OF COPAIBA, BAROSMA, BUCHU COMPOUND.)

GOOSE. (See POULTRY.)

GCOSSEBERRY, *gooz'-ber-re*, one of our most wholesome fruits. It is aperient, and the seeds of ripe gooseberries add to this property, by their mechanical action upon the bowels.

GOOSE-GRASS. (See GALIUM APARINE.)

GOSSYPIUM HERBACEUM, *gos-sip'-e-um her-ba'-se-um*, or cotton root, a native of tropical America, belonging to the Nat. order *Malvaceæ*. The bark of the root is the active medicinal part. It is an emmenagogue, and acts with more safety than ergot. It is an excellent remedy in the treatment of chlorotic and anæmic females. Dose: of the fluid extract, 2 to 4 teaspoonfuls; infusion, 2 to 5 fluid ounces. (See INFUSION.)

GOULARD'S EXTRACT, *goo'-lardz*, a saturated solution of sugar of lead, called also extract of lead. (See LEAD.)

GOUT, *gowt* [Lat. *gutta*, a drop]. This disease, under the Greek name of *Arthritis*, has long been familiar to physicians; the word gout, from the Latin *gutta*, being applied to it in obedience to an old doctrine which ascribed its origin to a drop of acrid matter deposited on the surface of the affected joints.

Causes.—Gout is very often a hereditary disease, but it may also be acquired; when so, its more direct causes are luxurious living, and the

sedentary habits which so frequently accompany that indulgence. Gout rarely occurs in early life, and most frequently presents itself between the ages of twenty-five and fifty. Men suffer from it in much greater number than women.

Symptoms.—Acute gout, or what is called a fit of the gout, generally commences at night with a severe pain in the ball of the great toe, though other joints in the body may be its seat; the part affected soon becomes red and swollen, possessing a glistening appearance, and the pain acquires the lancinating or shooting character. Symptoms of constitutional disturbance either accompany or speedily succeed the local disorder. Such are a quick pulse, increased heat of skin, confined state of the bowels, and urine which, besides possessing a high color, deposits, after a little time, a sediment more or less dense. While the disease, when assuming the form now briefly described, is liable to be developed without the occurrence of any premonitory symptoms, the more usual course is for the patient to have suffered for some days from derangement of the stomach, with loss of appetite, and other indications of its approach. More particular reference need not be made here to the various forms of gout, or the peculiar sufferings of gouty patients.

Treatment.—The treatment of the gout is divisible into two prominent particulars: what is required during the fit, and the suitable management of the patient after its declension or in the intervals of the attacks; for when the disease has once occurred, it manifests a great tendency to return:

Under the former may be ranked, first of all, rest, especially of the affected part, and the application over it of a piece of flannel dipped in warm water. The patient's food should be of the simplest description during the continuance of the paroxysm. The remedy which has been chiefly employed in the treatment of gout, as well as of all forms of gouty ailments, is the meadow-saffron, or colchicum. Of it there are several different preparations. Perhaps the wine of colchicum is the most frequently employed, and in an attack of the disease it may be administered alone, or with a little magnesia, as a draught at bed-time, and repeated in the morning along with a dose of some laxative. The dose of the wine of colchicum in such circumstances, for an adult, should not exceed 30 or 40 drops; it may thus be continued for several successive days. Usually the attack of the disease does not last more than a few days.

It is by careful attention to diet and regimen that, during the intervals of the paroxysmal attacks of gout, the patient is to be treated. No precise rules applicable to all sufferers can be laid down; but while temperance in the use of, if not abstinence from, fermented liquors, should

be practised by the great majority, it is specially incumbent upon those whose general health has not as yet been damaged by repeated attacks of the disease. Some sufferers from gout there are who, having long indulged, positively require their accustomed stimulation, and if altogether deprived thereof, would the more certainly be attacked. Exercise is good for all except the thoroughly debilitated; but even in the case of the young and strong, it should not be so great as to be followed by much fatigue. The bowels, if they tend to be confined, should be carefully regulated; and for this purpose no means are better than small doses of rhubarb (10 grains) and bicarbonate of potash (15 grains). Let attention be further paid to the condition of the skin; to maintain its ready transpiration is of great importance. Lastly, as regards diet, all articles of food should be selected from their being as readily as possible digestible. (See Food.) White fish and white flesh—as of fowl, rabbit, and such like—if they do not form the entire, should certainly constitute the staple commodities. Sherry wine, and the lighter German wines when quite sound, as Hock and Moselle, which increase the elimination by the kidneys, are preferable to port and burgundy, and, generally speaking, also to claret.

Gout, as is well known, is apt to attack internal organs, and specially the stomach; when so, the patient experiences violent pain, with sickness, and a sensation of great faintness. This is often a formidable, not unfrequently it is a fatal, form of the gout. If it turn out upon inquiry, that some indigestible article of food has been recently taken, it is always well in such circumstances to exhibit an emetic; and after its operation, or without its administration, if the stomach be supposed to be at the time free from any deleterious substance, a glass of warm brandy and water, either alone or with the addition of 30 or 40 drops of laudanum, should be given. Attempts, which are sometimes successful, may also be made to determine the gout to a less dangerous locality, as the feet, by covering them with mustard poultices, or placing them in a hot bath. If great pain in the stomach come on without the sense of faintness and the cold surface with feeble pulse, then possibly a dose of magnesia, alone or with rhubarb powder, or of bicarbonate of potash, may relieve the pain, and render further interference unnecessary. (See DIET, FOOD, ALE, WINE, EXERCISE, URIC ACID.)

GRACILLARIA, *gra-sil-la'-re-a*, in Botany, a species of plants belonging to the Nat. order *Algæ*, or Sea-weeds. The *Gracillaria lichenoides*, is our Ceylon moss. It is nutritive, emollient, and demulcent, and may be employed in the form of a decoction or jelly as a food for children and invalids; and medicinally in pulmonary complaints, diarrhœa, etc. *Gracillaria plocaria*, is Corsican moss. It has been used

principally as a vermifuge, but its properties have been much overrated. (For ICELAND MOSS, see CETRARIA.)

GRADUATED MEASURE FOR ADMINISTERING MEDICINES. (See HOUSEHOLD MEDICINES.)

GRAIN. (See WEIGHTS AND MEASURES.)

GRAINS. (See CEREALS, AVENA, FLOUR, OATMEAL, CORN MEAL, BREAD, FOOD.)

GRAINS OF PARADISE. (See AMOMUM.)

GRANULATED, *gran'-u-late-ed*, prepared in the form of grains, as granulated citrate of magnesia.

GRANULATIONS, *gran-u-la'-shuns* [Lat. *granum*, a grain], are the small red rounded points which cover the surface of a healing sore. They are very vascular and bleed easily. When the granulations are deficient, the sore is depressed, smooth and glazed-looking, and is not healing well. When the granulations are excessive they constitute what is called proud flesh. In this state they are paler than they should be, and require depressing or astringing by some caustic or astringent agent, such as lunar caustic, blue vitriol, etc. (See CAUSTIC, ULCERS.)

GRAPE, *grape* [Fr. *grappe*], the fruit of the vine, one of, if not the most wholesome of fruits; when ripe it contains sugar abundantly, vegetable jelly and mucilage, and the characteristic tartaric acid in combination with potash, also gluten, on which depends its property of ready fermentation, in which respect the juice of grape excels all other vegetable juices; undergoing spontaneously the necessary change, and becoming converted into true wine by its own inherent power of fermentation. The juice, if kept a few hours, will spontaneously ferment. As a cooling article of diet, ripe grapes are most wholesome and invaluable in many cases of illness; but must be forbid when their aperient properties may prove injurious. Of late years, what is called the grape-cure has been introduced into Germany: the persons undergoing it living chiefly on grapes, of which they have to consume many pounds weight per day, and bread. It is probable that in some states of constitution this cooling system of diet may be useful; it has, however, at least one serious drawback: the continued application of the acid of the fruit to the teeth completely dissolves off the enamel. (See FERMENTATION, RAISIN, WINE.)

GRAPE CURE. (See GRAPE.)

GRAPE SUGAR. (See GLUCOSE.)

GRAVEL. (See CALCULUS, URINE, LITHOTOMY, LITHOTRITY, HYDRANGÆA ARBORESCENS.)

GRAVEL-GRASS. (See GALIUM APARINE.)

GRAVEL-PLANT. (See EPIGÆA REPENS.)

GRAVEL-ROOT. (See EUPATORIUM PURPUREUM.)

GRAVEYARDS. (See SANITARY SCIENCE.)

GRAY POWDER. (See GREY POWDER.)

GREEN SALVE, *green säv* or *sälv* [Ang.-Sax. *grene*], a preparation made by melting together equal quantities of white gum, turpentine and bayberry wax. It should be strained and stirred until cold. It is a useful application to scrofulous and other ulcers.

GREEN-SICKNESS. (See CHLOROSIS.)

GREEN TEA. (See TEA.)

GREEN VITRIOL, OR SULPHATE OF IRON. (See IRON.)

GREEN WALL PAPER, POISONOUS. (See ARSENIC IN WALL PAPER.)

GREGORY'S POWDER OR MIXTURE, *greg'-o-reez*, a compound of 2 parts of rhubarb, 4 parts of calcined magnesia, and 1 part of ginger. It is taken either simply, in water, or with water along with some stimulant, such as a teaspoonful of sal-volatile; it is a good stomachic and gentle aperient; but persons sometimes get too much in the habit of taking it regularly, and injure the tone of the stomach by the undue amount of magnesia. In severe cases of colic, attended with constipation and griping pain in the bowels, 1 teaspoonful of Gregory's powder with 30 drops of sal-volatile, may be taken in a wine-glassful of peppermint water every three hours till the bowels are moved. It seldom fails to give relief.

GREY, OR GRAY POWDER, *gra*, a mild mercurial preparation. Very useful as an alterative medicine in childhood, when the evacuations are pale and unhealthy. For this purpose, 2 or 3 grains of gray powder, with a like quantity of rhubarb or magnesia, may be given for two or three times, on alternate evenings.

GRIEF. (See PASSIONS.)

GRINDELIA ROBUSTA, *grin-de'-le-a ro-bus'-ta*, a native of the Pacific Slope. A few years ago, when it was introduced from California to the medical profession as a specific for asthma—as near as any single drug could be a specific—it was looked upon with some suspicion. But now it has won its way to the foremost rank, everywhere, as an anti-asthmatic of sterling value.

In our common cases of bronchitis, or winter catarrhs, it is also of great value in doses of a $\frac{1}{2}$ to 1 teaspoonful of the fluid extract repeated every three or four hours as required.

In hay fever, grindelia has also proven advantageous. In this case the remedy is best dispensed in simple syrup, or, if a cathartic is needed (for often the bowels are irregular in these cases), combined with the fluid extracts of senna and rhubarb. In these cases a somewhat larger

dose of the remedy is needed than in the bronchial cases. A useful formula would be: fluid extract of *grindelia robusta*, 4 fluid ounces; fluid extracts of senna and rhubarb, of each, 1 fluid ounce. Then of this mixture take 1 dessertspoonful every half hour or so till relief is felt, when diminish the dose to three or four times a day.

The usual dose of the pure fluid extract is a $\frac{1}{2}$ to 1 teaspoonful in cases of asthma; and it may be thus taken in sweetened water every half hour, or hour, if necessary; then the dose should be diminished to three or four times a day. The formula above given for hay fever would not be a bad one for asthmatics to use, as they are frequently troubled with constipation.

GRIPING, *gripe'-ing*, is pain produced in some portion of the bowels, in consequence of irregular contraction of the muscular coat; it is in fact a minor form of colic, or spasm, and is to be relieved by the management recommended under those heads. Some medicines are more liable to gripe than others, and some individuals are more than others susceptible of these griping properties. The inconvenience is generally and successfully remedied by the addition of some carminative or aromatic, such as one of the essential oils—clove, cinnamon, etc.,—or by ginger, etc. Pills which are apt to gripe are more effectually corrected by the addition of 1 or 2 grains of extract of henbane, when that medicine is admissible. Some medicines are rendered griping by faulty preparation. This is especially the case with senna. (See COLIC, SPASM.)

GROCER'S ITCH. (See SKIN, DISEASES OF THE; IMPETIGO.)

GROUND HOLLY. (See CHIMAPHILA UMBELLATA.)

GROUND LAUREL. (See EPIGEA REPENS.)

GROUND LEAF. (See CHIMAPHILA UMBELLATA.)

GROUND MOSS. (See POLYTRICHUM JUNIPERUM.)

GROUND RASPBERRY. (See HYDRASTIS CANADENSIS.)

GROUSEBERRY. (See GAULTHERIA PROCUMBENS.)

GROWTH, *gröth*, or increase of size of the body, as a whole, or of any part of it, is dependent, as a healthy process, first on a proper amount of nervous excitation, and second, on a due supply of healthy blood. When any part, such as the arm of a workman, is regularly and vigorously exercised, the nervous power and the flow of blood are directed to it in increased proportion, it acquires additional substance, or grows; but should the same arm become paralyzed, how quickly will it diminish in bulk. Up to a certain period of life the body grows; in animals this varies with the species; in man, the process continues, generally, up to the twentieth year, or even beyond. When growth ceases, it is not that new material ceases to be added to the body, for this is

unceasingly being effected to supply the place of those constituents of the frame which are continually being used up; but the balance between the food taken and assimilated, and the waste of the body, is equalized, and after growth has ceased, this balance—with the exception of fatty deposits—is, during health, maintained with but little variation during the years of life's prime. When old age comes on, that is after the sixtieth year, the balance inclines the other way; the waste now exceeds the reparative nutriment which it is in the power of the system to receive and elaborate, and the tissues all diminish in bulk, the stature, even, becoming less.

Young persons require nutriment, not only to sustain the wasting process of respiration, and of motor change or movement, but they require, also, sufficient to supply the growing tissues of their entire body with the various elements which go to perfect their composition; if these elements are not supplied, development is either arrested, or, the tendency to growth continuing, the bones and tissues generally lengthen, without acquiring their healthy substance. As a rule, the appetite of a healthy growing child for plain and wholesome food ought never to be stinted. (See FOOD, DIGESTION, EXERCISE, EXCITANTS, HEALTH, ETC.)

GRUEL, OATMEAL. (See COOKERY FOR THE SICK.)

GRYPHOSIS, *gri-fo'-sis* [Gr. from *grupoein*, to incurvate], in Surgery, is a disease of the nails, which turn inwards, and irritate the soft parts below. (See NAILS, INGROWING OF THE.)

GUAIACUM, *gwa'-ya-kum* [from *guayac*, its native name], a genus of the Nat. order *Zygophyllaceæ*. The species *G. officinale* is a fine evergreen tree from forty to sixty feet in height, and of a dark, gloomy aspect. It is a native of the West India Islands. The wood is remarkable for its hardness, toughness and durability, qualities which render it particularly valuable for many purposes. It is known in commerce as *lignum-vitæ*. This wood and a resin obtained from it are officinal, and are known respectively as *guaiacum-wood* and *guaiacum-resin*. Both the wood and resin are used as stimulants, diaphoretics, and alteratives, chiefly in gout and rheumatism, and also in syphilitic and various cutaneous affections. The dose of the resin is from 10 to 30 grains. The mixture is formed by triturating $\frac{1}{2}$ ounce of the resin in powder, with $\frac{1}{2}$ ounce of refined sugar and $\frac{1}{4}$ ounce of gum acacia powdered, and adding gradually 1 pint of distilled cinnamon water. Dose, $\frac{1}{2}$ to 2 fluid ounces. The ammoniated tincture is formed by macerating 4 ounces of the resin powdered in 15 fluid ounces of the aromatic spirit of ammonia for seven days, in a well-closed vessel; then filter, and add of the spirit of ammonia enough to make 1 pint. Dose, $\frac{1}{2}$ to 1 teaspoonful.

GUARANA, *gar-a'-na*, a preparation from the seeds of the *Paulinia*

Sorbilis, a Brazilian tree belonging to the Nat. order *Sapindaceæ*. It is held in high repute as a remedy for sick headache, bowel complaints, neuralgia and rheumatism. Dose: of the powder, 30 to 40 grains; fluid extract, 10 drops to 1 teaspoonful, three or four times a day.

GUINEA PEPPER. (See AMOMUM.)

GUINEA WORM. (See FILARIA.)

GULLET. (See ŒSOPHAGUS.)

GULLET, FOREIGN BODIES IN THE. (See FOREIGN BODIES IN THE GULLET.)

GUM, *gum* [Fr. *gomme*], a vegetable product, which forms a slimy solution with water, but is insoluble in alcohol, ether, and oils. There are six varieties of gum—gum-arabic, gum-Senegal, gum of the cherry and other stone-fruit trees, gum-tragacanth, gum of Bassora, and the gum of seeds and roots. All these gums, except the last, flow spontaneously from the branches and trunks of their trees, and sometimes from the fruits, in the form of a mucilage, which dries and hardens in the air; the gum of seeds and roots, however, requires to be extracted by boiling water. A number of very different substances are confounded in commerce under the name of gum. Thus, gum elemi and gum copal, which are true resins; gum ammoniacum, which is a gum-resin; and gum elastic (*caoutchouc*), which differs from both, are all called gums.

GUM-AMMONIAC, OR AMMONIACUM. (See AMMONIACUM.)

GUM-ARABIC. (See ARABIC, GUM; ACACIA; GUM.)

GUMBOIL, *gum'-boil*, is a small abscess which forms in the cellular substance of the gum. At first it is sufficient simply to protect it against cold; but if it continues to advance, the process of ripening may be hastened by hot application to the cheek, next to the swelling. If the pain be excessive, a leech applied to the part will usually afford relief. As soon as the presence of matter can be ascertained, it should be let out by a free incision.

GUM-DRAGON. (See ASTRAGALUS.)

GUM-ELASTIC. (See CAOUTCHOUC.)

GUM OF BASSORA. (See BASSORA GUM.)

GUMS, *gums* [Ang.-Sax. *goma*]. The gums which closely invest, but do not adhere to the teeth, are composed of mucous membrane of a dense insensible character. In the investigation of disease, the gums frequently afford valuable information respecting general constitutional disorder. In sea-scurvy, the gums become spongy and swollen, extend over the teeth, and bleed easily. In persons who have been long subjected to the action of lead, slowly introduced into the system, either in the course of their occupation, or, as sometimes occurs, from the ordinary drinking water

having become impregnated with the metal from lead pipes, a blue line is often observable along the edge of the gum. A pink line in the same situation has also been pointed out as showing itself in persons affected with pulmonary consumption. In constitutional affection by mercury, it is well known that the gums become inflamed, sore and spongy; in some cases of disease affecting the mouth, the gums become dark or black in color, and the breath is extremely fœtid.

Of course, in cases where the state of the gum is indicative of constitutional affection, that must be attended to, but the condition of the gums in any case, may generally be much relieved by the use of astringent substances in the form of washes; none, perhaps, is better than the tincture of myrrh, but camphor dissolved in alcohol may also be used, or, indeed, almost any one of the astringents. A dram of alum dissolved in a pint of water makes a very good and cheap wash.

In the case of black-looking gums, with fœtid exhalation, a wash made of 2 drams of muriatic acid to 1 pint of water will be found most especially useful, or 2 drams of the solution of chloride of soda may be used with equally good effect. Such a case, however, must require medical attendance. The gums in the teething of children require much attention. (See CHILDREN.)

GUM-SENEGAL. (See GUM; ARABIC, GUM.)

GUM-TRAGACANTH. (See ASTRAGALUS.)

GUN-COTTON. (See PYROXYLINE, COLLODION.)

GUNSHOT WOUNDS. (See WOUNDS.)

GUTTA-PERCHA, *gut-tā'-per'-tshā*, the concrete juice of the *Isonandra Gutta*, a tree belonging to the family of the *Sapotaceæ*. It grows abundantly in Singapore, Borneo, and other islands of the Eastern Archipelago. The tree, which is called *percha*, grows to the diameter of five or six feet, and on being notched, yields a milky juice, which solidifies after exposure to the air, forming the gutta-percha of commerce. It is a tough, inelastic substance, becoming soft and plastic at 212°, at which temperature it may be moulded into shape, which it retains without change until it is cool. It also possesses the valuable property of welding together at the temperature of boiling water. Its plastic properties render it extremely useful. Being impervious to moisture, and resisting the actions of acids and alkalies to a great extent, it is of much use to the chemist as a material for making bottles, carboys, baths, etc. It may be rolled into thin transparent sheets, which are much used for surgical purposes, being perfectly impervious to moisture.

Gutta-percha solution is beneficial as a protective covering for compound fractures, open cancers, suppurating gangrenous surfaces, burns, abrasions, wounds, etc. It may be applied by a brush or by pouring.

A delicate film is left by evaporation of the liquid, which completely excludes the air and acts as an artificial cuticle. It has been topically employed with advantage in various cutaneous affections, serofulous and indolent ulcers, and to prevent pitting in small-pox.

GYMNASTICS, *jim-nas'-tiks*, [Gr. *gumnastike* from *gumnos*, naked], a term applied to those exercises of the body and limbs which tend to invigorate and develop their powers. These exercise a very important influence upon health, strengthening the system and warding off or curing many forms of disease. Indeed, there is probably no more likely way of inducing disease than by giving oneself up to indolence and inactivity. Gymnastic exercises, practised under proper control, must act beneficially, both mentally and physically. They strengthen the various organs of the body, and render them more able and efficient servants of the mind; they accelerate the circulation of the blood, increase the action of the various secretive organs, promote the carrying off of effete materials, render the body less susceptible to the influence of heat or cold, and enable it to ward off many forms of disease. They also strengthen the will by giving it increased power over the bodily organs, restrain the imagination and fancy within proper limits, and in a remarkable degree abate the desire for sensual pleasures. Indeed the mental benefits which they confer are probably equally great with the physical, for they give clearness and precision to thought, cheerfulness, courage, presence of mind, and independence of spirit. "If you wish to develop the mind of a pupil," says Rousseau, "develop the power which that mind has to govern; exercise his body; make him healthy and strong, that you may make him prudent and reasonable."

But it must be remembered, gymnastics are too often practised in an injurious manner, causing violent straining of the limbs, joints, etc. It is said by many eminent authorities, that professional gymnasts often die prematurely from heart disease, etc., incurred by violent exercise. Gymnastics, to be beneficial, must be indulged in with discretion and moderation. (See EXERCISE, MOVEMENT CURE.)

GYPSUM. (See CALCIUM.)

H.

HABIT, *hab'-it* [Lat. *habitus*; *habeo*, *habitus*, to have]. The connexion existing between the influence of the will and certain sensations and motions in the living body, is a fact of which every one must be conscious from personal experience; when, however, the actions resulting

from these sensations and motions are, after frequent repetition, performed without a distinct and conscious exercise of the will, they are said to be the result of habit. These habits, however, are of the body, and are distinct from habits of the mind, influences which act upon the will itself, with lesser or greater power, and impel the individual to certain acts.

It is, perhaps, needless to advert to the proverbial power which habit exercises, not only over man but animals, becoming to them a "second nature," and to their offspring a natural tendency. So powerful an agent, both mental and physical, as habit, cannot fail to be largely implicated in the consideration of the nature and treatment of disease. It is sometimes of the greatest consequence, not only to break the influence of habits of which the mind is conscious, but even of habits of disease over which the mind has generally no control. This is particularly the case with respect to periodic diseases of the nervous system, such as ague, etc., which, after a time, appear to be continued rather from the habit of the constitution than from any other cause.

Still more widely connected with the treatment of disease, is the acquisition of good habits, in the room of bad ones, which are often the causes of impaired health. Some individuals constantly eat and drink too much, from mere habit, others take little or no exercise "from habit," and although conscious of these and other negligences, often require considerable exertion of the will, aided by the almost despotic commands of a medical attendant, before they can break through them. The good effects of habit in persons liable to constipation have already been pointed out in the article *COSTIVENESS*; in this case the habit originating in the will, becomes, after a time, partly or wholly involuntary.

There is, however, another state of disorder, and a more intractable one, in which the influence of habit may be most beneficially exercised. It is that state of hypochondriac unrest called the "troubled mind." In such a condition, nothing is more valuable, than the habit of daily, at certain fixed times, forcing the mind to bend itself to some definite continuous employment, one which it will require some degree of mental exertion to carry on, and which will maintain its interest, perhaps an increasing one, from day to day. (See *HYPOCHONDRIASIS*, *MELANCHOLIA*.)

HÆMATEMESIS, *hem-a-tem'-e-sis* [Gr. *aima*, blood; and *emeo*, to vomit], vomiting of blood from the stomach. (See *HEMORRHAGE*.)

HÆMATOCELE, *he-mat'-o-sele* [Gr. *aima*, and *kele*, a tumor], a soft, fluctuating tumor of the testicles caused by a blow or other injury to the part. It is simply blood effused into the cavity of the scrotum, which flows out as soon as an opening is made for its escape.

HÆMATOXYLON, *he-ma-toks'-e-lon* [Gr. *aima*, blood; *xulon*, wood], a genus of the Nat. order *Leguminosæ*, the species *H. campechianum* is a tree of sub-tropical America, yielding the wood commonly known as logwood. The sliced heartwood of this tree is the part used in medicine. The chips are of a reddish color, having a feeble, agreeable odor, and a sweetish taste; a small portion chewed imparting to the saliva a dark pink color. It is tonic and astringent, without any irritating properties. It does not constipate nor so readily disorder the digestive organs as many other astringents, hence its use may be continued for a longer period. It may be employed as an astringent to control diarrhœa, hemorrhages and excessive night sweats. The mildness of this drug gives it a preference over many others in the treatment of the diarrhœas of children. Dr. Churchill speaks favorably of logwood both as an internal and local application in treatment of the whites, mentioning many cases of improvement and recovery. In cancer and gangrene an ointment of the extract proves serviceable.

The decoction is formed by boiling 1 ounce of the chips in 1 pint of still'd water for ten minutes, adding 60 grains of powdered cinnamon bark, straining, and adding distilled water to make up 1 pint. Dose: of the decoction, 1 to 2 fluid ounces: fluid extract, $\frac{1}{2}$ to 1 teaspoonful; solid extract, 5 to 30 grains.

HÆMATURIA, *he-ma-tu-re-a* [Gr. *aima*, blood, and *ouron*, urine], is bloody urine, a discharge of blood with the urine, owing usually to a diseased state of the kidneys or bladder. It is a symptom of a diseased state of one or other of these organs, to which the treatment is to be directed. (See URINE.)

HÆMOPTYSIS, *he-mop'-te-sis* [Gr. *aima*, blood, and *ptusis*, spitting], bleeding from the lungs. (See HEMORRHAGE.)

HÆMORRHAGE. (See HEMORRHAGE.)

HÆMORRHOIDS. (See PILES.)

HAIR, *hare* [Ang.-Sax. *hær*], is a development from, it might be called a prolongation from, the outer or scarf skin. Each separate hair is contained in a pit which passes into the true skin or through it, into the tissues beneath. Into this pit the outer or scarf skin is folded, and from this folding the hair is developed, consisting of an external or denser portion composed of flat over-lapping scales, and an internal porous pith, which contains the coloring matter.

The condition of the hair is often highly symptomatic of the bodily condition, at the same time it is, of course, liable to alteration from local influences.

The hair is apt to become split or forked in consequence of weak growth; this generally occurs in persons in a debilitated condition.

Keeping it cut tolerably short is a good preventive, but of course removal of the bodily weakness of which the state of the hair is symptomatic, is essential. The color of the hair is indicative of constitution and temperament. (See *TEMPERAMENT*.) Its changes in color indicate generally the advance of years, but sometimes the premature gray speaks of continued mental toil and trouble, and it has followed at once upon violent mental emotion, a few hours sufficing for the change.

The unfortunate queens, Mary of Scotland and Marie Antoinette, are both said, among many others, to have been instances of this effect of mental emotion upon the hair; and the fact of this direct connection between the condition of the body and the coloring matter of the hair, renders it probable that permitting the hair of children to be kept long, is really subjecting them to a source of constitutional weakness.

Falling out of the hair occurs from weakness, either of the body generally, or of the hair bulbs or follicles themselves. Various stimulant local applications are used in such cases. (See *BALDNESS*.) Balsam of Peru, 1 dram, stirred well into 1 ounce of simple cerate when melted, is said to be a good application. Of late years, several very interesting diseases of the hair have been discovered by the aid of the microscope. They are dependent upon the presence of vegetable parasitic fungi, and can only be properly recognized and treated by a skilful medical man.

Removal of the hair is a proceeding frequently called for in the treatment of disease, especially of febrile and inflammatory affections affecting the head. In these cases, it may be entirely removed, at once, without risk, and should be shaved off when the full effect of the procedure is required. Some persons, especially females, are often much vexed at the shaving of the head in fever, etc. Its necessity is, of course, or ought to be, answer sufficient; but it often happens, that if the hair has not been taken off during the course of disorder, it must, from tendency to shed afterwards, be shaved off during convalescence.

When the hair is removed in persons not suffering from acute disease, it must be done cautiously, especially if this natural clothing has been somewhat long and thick. Where it must be taken off, entirely, and at once, the head should be protected by a cap of flannel, otherwise neuralgic or rheumatic attacks may be the consequence.

Frequent cutting undoubtedly strengthens the growth of the hair, and frequent brushing and washing are quite the best methods for preserving its health and cleanliness, and ought, along with the assistance of the one-sided comb, to be solely trusted to—the irritating “small tooth comb” ought to be banished from use entirely. (See *BALDNESS*, *DANDRIF*, *SCALP*, *SKIN*.)

HAIR-CAP MOSS. (See *POLYTRICHUM JUNIPERUM*.)

HAIR GLOVE. This is a glove woven of horse hair, with the ends left on. It is used to remove the superfluous cuticle, and in all cases where counter-irritation is required, may be employed with advantage.

HALLUCINATION, *hal-lu-se-na'-shun* [Lat. *hallucinatio*, from *hallucinor*, I err], denotes an error or mistake of the senses. It was a favorite maxim of Kant's "that the senses do not deceive us at all—it is only the judgment that deceives us." This is indeed true of illusions, where what is represented to consciousness are objects really existing, but different from what they really are; but it is not true as regards hallucinations strictly so called, where the senses convey to consciousness what do not really exist. Hallucinations do not depend upon the judgment, but are somatico-physical abnormalities. In illusions we have chiefly to consider the external occasion and the mental condition of the individual; in hallucinations, the organic and physical condition. They sometimes only affect one, sometimes several, and even all the senses. Hallucinations of the sight are perhaps the most frequent, and are commonly visions of sparks, flames, luminous spectres, terrific phantoms, etc. Hallucinations of hearing are also very common—humming or ringing in the ear, the sound of voices, etc. Hallucinations of smell are much more rare; but hysterical persons often smell objects which are not present; such as sulphur, musk, violets, etc. Hallucinations of taste resemble those of smell; and hallucinations of touch are also rare. The hallucination has always a subjective ground; either the receptive organ suffers, or the leading nerve, or the reacting cerebral centre, chiefly from pressure of blood, cramp, etc. The course and termination of these states of mind, which are only symptomatic, issue, after longer or shorter duration, either in health, from undeceiving the patient, or, if this does not happen, in a fixed idea, in insanity. The hallucinations of sight and hearing, on account of the psychical dignity of their organs, are especially of a fatal import. (See **INSANITY**.)

HAM. (See **BACON**, **PORK**.)

HAMAMELIS VIRGINICA, *ha-mam'-e-lis vir-jin'-e-ka*, or witch hazel, a perennial shrub belonging to the Nat. order *Berberidaceæ*. It grows in almost all sections of the United States, and in different parts is known by the common names striped alder, winter bloom, snapping, and spotted alder. The bark and the leaves are the parts used in medicine. Witch hazel is tonic, astringent, and sedative, and is used in hemorrhages, and diarrhœa and dysentery, and excessive mucous discharges. Locally it is used as a wash for sore mouth, and for scald head. Dose: of the fluid extract, 1 to 2 teaspoonfuls; infusion, 1 to 2 fluid ounces; syrup, 2 to 4 teaspoonfuls, three or four times a day. (See **INFUSION**.)

HAND, *hand* [Ger. *hand*, Lat. *manus*], is the lower portion of the superior extremity, the great organ of touch and prehension. The hand is that which distinguishes man in the class of mammals, he being the only animal possessed of two hands. That which constitutes the hand, properly so called, is the power of opposing the thumb to the other fingers, so as to seize upon the most minute objects. The hand is composed of a number of small bones, twenty-seven in all, so arranged as to combine the greatest possible degree both of strength and flexibility. These are arranged in three divisions—those of the carpus, metacarpus, and phalanges. They are connected together by numerous ligaments running in various directions, by means of which the bones are kept in their proper positions. Besides these there are the various muscles of the hand, which give to it the several motions of flexion, extension, abduction, adduction, and circumduction. The hand is also richly supplied with blood-vessels and nerves. This wonderful agent of the human mind is much exposed to injury. When this occurs, as it often does, at a distance from medical aid, one principle must ever be remembered, that the preservation of as much of the member as possible, even of a single finger, or of part of one, is of the highest moment with reference to future usefulness. In a crush of the hand, when bleeding is not great, the best treatment will be to place it in a large warm poultice, and keep at rest until medical aid is procured. The management of various accidents, etc., will be found under such heads as ARTERY, DISLOCATIONS, FRACTURES, WOUNDS, etc. (See ANATOMY, FINGERS.)

HANDS, BLISTERED. (See BLISTERED HANDS OR FEET.)

HAND SHOWER-BATH FOR CHILDREN. (See BATHS AND BATHING.)

HANGING, *hang'-ing*, suspension of the body by the neck—may cause death, in three distinct modes; by compressing the windpipe, and producing suffocation; by compressing the veins of the neck, and causing apoplexy; or more rarely by dislocating the neck. The two former modes may be mixed up together; the latter, when it does occur, is in consequence of a “fall,” such as is given at a public execution; it of course causes instantaneous death. Recovery from hanging must in some degree depend upon the completeness or not of the interruption to the passage of air through the windpipe for any time; it is not likely that resuscitation will be effected if this has continued four minutes. The first thing to be done when a person is found hanging is, of course, to cut him down at once, to loosen the material around the neck, to dash cold water over him, and to bleed. In such an emergency, a person would be quite justified in cutting across the temple, where the artery beats, with a penknife, and allowing blood to flow to the extent of 10 or

12 ounces. The bleeding could be controlled until the arrival of a surgeon, by means of pressure against the bone. In most respects, the treatment of a person hanged must be similar to that of one drowned, except that the application of heat would scarcely be requisite in the same degree. (See DROWNING.)

HARDHACK. (See SPIRÆA TOMENTOSA.)

HARELIP, *hare'-lip* [Lat. *labium leporinum*], is applied to a congenital malformation of the lip, from its fancied resemblance to the lip of a hare. It is a cleft or division of one or both lips, but usually the upper. Sometimes there is a considerable space between the parts, and occasionally the cleft is double, there being a little lobe, or small portion of the lip, between the two fissures. Sometimes, also, the fissures extend through the bones of the mouth. The operation for the hare-lip consists in paring off the edge of the separated parts on each side, and bringing the two new surfaces together, so as to close up the fissure, retaining them in their places by means of what is known as the twisted suture. This operation should be performed as soon as possible after birth.

HARTSHORN, POISONING BY. (See ALKALIS, POISONING BY.)

HARTSHORN, SPIRITS OF, OR SAL-VOLATILE. (See AMMONIA.)

HATRED. (See PASSIONS.)

HAWKWEED. (See HIERACIUM VENOSUM.)

HAY ASTHMA, *hā*, sometimes known as rose-cold or hay fever, seems to be a mixture of ordinary asthma and catarrh.

Causes.—It appears to be due to the inhalation of particles of finely divided hay and spring grass, and occurs in spring when the meadows are being mown. Powdered ipecacuanha will, in some instances, produce the same effect, and also the aroma of certain kinds of strawberries. It is an uncommon disorder, only a few of those exposed to the cause being ever affected with any of its symptoms.

Symptoms.—Watering of the eyes and nose, tightness across the chest, cough and mucous expectoration, difficulty of breathing and sneezing, giving rise to the feeling of impending suffocation. It attacks some persons very suddenly, and at a distance sometimes of several miles from the exciting cause. It appears to run in families.

Treatment.—The chief point in the treatment is to remove from the source of the infection. Tincture of the *lobelia inflata* has been highly recommended and may be given as follows :

Take of Tincture of lobelia.....One dram.

Pure water.....Three ounces.—*Miz.*

Give a tablespoonful three or four times a day.

The tonic plan of treatment, consisting of the administration of iron and quinine, has many advocates.

Take of Sulphate of quinine.....	Forty grains.
Sulphate of iron.....	Twenty grains.
Dilute sulphuric acid.....	Two drams.
Pure water.....	One pint.— <i>Mix.</i>

Give a tablespoonful before each meal and at bed-time.

Arsenic, in the shape of two drops of Fowler's solution in water after each meal, is an effectual remedy, but is not safe in the hands of unprofessional persons.

Preventive treatment.—Dr. Watson recommends the use of a respirator, during the hay season, and also that rags dipped in a solution of chloride of lime, should be hung in various places, and a small bottle of Labarraque's disinfectant be carried about the person. (See LABARRAQUE'S DISINFECTING FLUID.)

A visit to the White Mountains of New Hampshire is usually attended with great benefit, and Colorado and the Lake Superior region offer the best places of refuge from this disease in the West. (See HEALTH RESORTS.)

HAY-SAFFRON. (See CROCUS SATIVUS.)

HAZELWORT. (See ASARUM.)

HEAD. (See ANATOMY, BRAIN, CAPUT.)

HEADACHE, CEPHALALGIA, OR CEPHALALGY, *hed'-ake* [Ang.-Sax. *heafod*, head; *ace*, ache] is one of the most frequent ailments, and the result of a great variety of causes; consequently many varieties of headache are enumerated by medical writers; the consideration of all these in a work like the present would tend rather to confuse than to enlighten. The subject will probably be rendered most clear and useful to the unprofessional reader by considering it generally under the divisions of:

Headache from overfulness of blood; headache from deficiency of blood, or debility; headache from excited or inflammatory action; headache from sympathy, and headache from anomalous causes.

If a person who suffers from headache is of full habit generally, if he is sleepy, dull, the vessels of the face full; if the uncomfortable sensation in the head is aggravated by stooping, by an abundant meal, by stimulants, or by sleep, overfulness is the probable cause, and reduction of the diet, purging the bowels with calomel and colocynth, and with occasional doses of saline medicine, exercise, bathing the head with cold water, and, if the symptom is very severe, the application of a few leeches to the temples will be beneficial. If the urine is deficient, cream of tartar in some form may be taken with advantage. The above species of

headache, the result of general overfulness of blood, may also be occasioned by whatever impedes the circulation, such as affection of the heart or liver; when the latter is the cause, the pain is frequently most severe at the back of the head.

When, on the other hand, headache occurs in a person of weak constitution, when it is produced by or aggravated by exertion of mind, much talking, etc., when there is listlessness, both of mind and body, rather than oppression—the face pale, the pulse weak—debility is the probable cause, although at the same time there may be overfulness of blood in the interior of the head itself; very frequently, however, in this kind of headache, the head is hot, without there being any particular flushing of the countenance. This form of headache also is frequently accompanied with indigestion, and is very common in students and anxious men of business. Anything like abstraction of blood will certainly prove injurious; but cold to the head may be of service, not only as a temporary remedy, but habitually used by means of washing with cold water. Exercise, attention to the state of the bowels, without purging, some care in diet, and relaxation of mind, particularly by means of change of scene and air, will be most useful. In such cases, the whole system is weakened—the brain and nervous system, the circulating system, the digestive organs—and they act and react on one another.

Headache from excitement or inflammatory causes is such as occurs in the first stages of inflammation of the brain, and in some forms of fever, or it follows violence to the head. It of course falls to be treated under the articles on these contingencies generally.

Sympathetic headache is very common, and is evidently connected with disorder in some organ of the body, such as the kidneys, womb, etc. Headache, sympathetic with disorder in the stomach, or some part of the alimentary canal is, however, the most frequent form. The presence of bile, or of indigestible food in the stomach, almost certainly occasions dull pain in the forehead; an alkaline, or too acid condition of the contents of the organ exerts the same effect. The various symptoms of indigestion will generally point to the cause. In the first two, an emetic or some aperient, such as the compound rhubarb pill, or a stimulant, will probably remove the disorder. A vegetable acid, such as vinegar, many persons know from experience, will at once cure the headache, especially if it occurs from the use of oily or greasy food; and again when acid eructations, heart-burn, etc., indicate the presence of superabundant acid, a dose of soda, potash, or magnesia will correct the cause, and remove the effect.

It is in the form of headache, commonly known as sick headache, that the new remedy guarana exercises such a marked influence. In

doses of 30 to 40 grains of the powder, or $\frac{1}{2}$ to 1 teaspoonful of the fluid extract, it often acts like a charm. (See GUARANA.)

Under the head of anomalous headaches, may here be classed all such as are not referable to any distinct cause. They constitute a considerable proportion of the cases of headache generally, and frequently baffle both the investigation and treatment of the medical adviser. (See BILIOUS HEADACHE.)

HEALTH, *helth* [Ang.-Sax. *hæth*], is that condition of the living body in which all the vital, natural, and animate functions are performed easily and perfectly, and unattended with pain. It consists in a natural and proper condition and proportion in the functions and structures of the several parts of which the body is composed. Physiology teaches us that there are certain relations of these functions and structures to each other, and to external agents, which are most conducive to their well-being, and which constitute the condition of health. Deviations from the due balance between the several properties or parts of the human frame constitute disease. The most perfect state of health is generally connected with a certain conformation and structure of the bodily organs, and well marked by certain external signs and figures, a well proportioned body, calm and regular circulation of the blood, free and full respiration, easy digestion, etc. There are, unfortunately, few persons who can be said to enjoy perfect health; and hence, in ordinary language, when we speak of health, we imply merely a freedom from actual disease. In this sense, the standard of health is not the same in every individual; that being health in some which would be disease in others. The healthy pulse in adults averages from seventy to eighty per minute, yet there are some in whom ninety or one hundred is a healthy pulse; and others again, in whom the normal rate is from forty to sixty. Muscular strength and activity, nervous power and the power of sensation, vary exceedingly in different individuals, yet all within the limits of health. There is scarcely any earthly blessing men hold so lightly as health, and yet there is none the loss of which they so deeply deplore. Every man is accountable, in a much greater degree than is generally supposed, for his health. We often hear it said, that the deaths of the young and gifted are mysterious dispensations of Providence; when, if physiology were questioned, she might prove that they had fallen victims to their own neglect, or violation of laws to which inevitable penalties have been attached, and which have been imposed upon our nature for our benefit. A human being, supposing him to be soundly constituted at first, will continue in health until he reaches old age, provided that certain conditions are observed, and no injurious accident shall befall. This is a proposition so well supported

by an extensive observation of facts, that it may be regarded as established.

It becomes, then, important to learn what are the conditions essential to health, in order that, by their observance, we may preserve for ourselves, what is justly esteemed as the greatest of earthly blessings, and dwell for our naturally appointed time upon the earth. A general acquaintance with these conditions may be easily attained by all, and to pay them obedience is much more within the power of individuals than is generally supposed.

The leading conditions essential to health may be thus enumerated:

1. A constant supply of pure air; 2. A sufficiency of nourishing food—rightly taken—and suitable clothing; 3. Cleanliness; 4. A sufficiency of exercise to the various organs of the system; 5. A right temperature; 6. A sufficiency of cheerful and innocent amusements; and, 7. Exemption from harassing cares.

Of course, a thousand accidents may befall us; and the statement of holy writ, that “there is but a step between us and death,” is constantly true, yet, notwithstanding the many circumstances which are beyond our control, such as the race we belong to, our sex, the climate we live in, our social and financial position in life, hereditary tendency to disease, and in some instances, our occupations, it is beyond dispute, that it is within the power of a large proportion of the human race to prevent decrepitude and reach a hale old age. “The wicked shall not live out half their days,” says an inspired writer, and it is just as true, that he who deliberately violates the laws of life and health, will go down to a premature, and in many instances, a dishonored grave. For further information on this all-important subject, the reader is referred to the whole work, for it all bears upon it. (See *SANITARY SCIENCE, FOOD, DIET, DIGESTION, DYSPEPSIA, MEALS, BREAKFAST, LUNCHEON, DINNER, SUPPER, COOKERY FOR THE SICK, GROWTH, REGIMEN; RULE, LIVING BY; DRINKS; STIMULANTS, ALCOHOLIC; HABIT, EXERCISE, GYMNASTICS, MOVEMENT CURE, TRAINING, PLEASURE, RECREATION, EXCITANTS, TRAVELLING, AIR, VENTILATION, DISINFECTANTS, WATER, CLIMATE, HEALTH RESORTS, MINERAL WATERS, ABLUTION, BATHS AND BATHING, TOILET; SKIN, CARE OF THE; COLD, DAMP, HEAT, CONTAGION, LIGHT, COLD FEET, CLOTHING, EDUCATION, CHEST, FLANNEL, DISEASE, SLEEP, EARLY RISING, LIFE, PASSIONS, OCCUPATION, POVERTY; AGE, OLD; CLIMACTERIC DISEASE, HOUSES, BED-ROOM, CHIMNEY, DRAINAGE, WALLS AND WALL PAPERS, ELECTRICITY, HEREDITARY TENDENCY, MENSTRUATION, MARRIAGE, CHILDREN, STERILITY, CIRCULATION OF THE BLOOD, RESPIRATION, ETC.* See also the numerous individual subjects on the various articles of food, such as BEEF, MUTTON, POTATO, CABBAGE, BREAD, OATMEAL, RASPBERRY, STRAWBERRY, ETC.)

HEALTH, PUBLIC. (See SANITARY SCIENCE.)

HEALTH RESORTS. An article on this subject is rendered necessary by the fact that within the past few years a great many places have sprung into notoriety, claiming to possess certain advantages in regard to water, temperature, location or scenery, for the cure of special diseases of the human system. In regard to many of these places, an examination of their respective merits has shown that they have been puffed into fame by parties who have lots to sell, or by interested shareholders in hotel or mineral water companies. On the other hand there are a great number of localities, both on this continent and in the old world, possessing special advantages as places of resort for parties suffering from individual cases of disease. Persons in the early stage of consumption, and those who are predisposed to attacks of bronchitis, catarrh, asthma, hay-fever, rheumatism, certain forms of heart disease, and emphysema of the lungs, as well as persons of a weak and feeble constitution generally, will often derive great benefit, and in many instances, prolong life, by passing a season or two at one of our warm and sheltered health resorts, provided, always, that it be well selected according to the advice of some medical man to whom the suitability of the place to the particular case is well known. It is very certain that many, for want of proper information on the subject, make an injudicious choice of a resort, and many more do not make the best choice, and consequently fail to reap all the advantage they might from a residence in a place suited to their requirements.

In regard to the health resorts of the eastern hemisphere, it is not necessary to more than mention the names of a few of them, for the reason that those who possess sufficient means to take such an extended trip can easily acquire the necessary information from other sources.

Among the favorite resorts in Britain, are Hastings, Margate, Torquay, Isle of Wight, Clifton, Brighton, St. Leonard's Ramsgate, Dover, Folkstone, and Jersey and Guernsey in the English Channel.

On the Continent, beautiful retreats, too numerous to mention, may be found among the Swiss lakes; along the sunny shores of the South of France, and under the blue skies of Italy.

The Azores and the Canary and Madeira Islands in the Eastern Atlantic Ocean, on account of their mild and equable temperature, are peculiarly adapted for a resort for the consumptive.

In Canada, St. Catharines and Caledonia Springs, both in the Province of Ontario, are resorted to for the benefit to be derived from the mineral springs to be found there, while the beautiful scenery and clear, bracing air of the Muskoka district render it a delightful resort for the dyspeptic and careworn denizen of the heated and dusty town and city.

Thousands seek vigor and relaxation there every summer; although the winters are long and severe, consumption is almost unknown there. Murray Bay, Cacoma and Tadousac in Quebec, are popular resorts both for health and pleasure, and are made doubly attractive by the magnificent scenery to be met with in the voyage down the St. Lawrence.

The principal resort of New England, is the White Mountains of New Hampshire, known as the Switzerland of America, a famous refuge for patients suffering from that peculiar form of asthma, known as hay-fever.

The diversified scenery and fine sea-air have made Newport, R. I., a famous watering place.

Long Branch and Schooley's Mountain in New Jersey, are favorite places of resort, the latter being visited for its chalybeate waters. They are very strongly charged with iron, and are very beneficial in all cases requiring the use of a ferruginous tonic.

New York State has a great many popular resorts, chief among which are the Saratoga and Ballston salt springs; Sharon, Avon and Oak Orchard chalybeate springs; Clifton sulphur springs; and the carbonated springs at Lebanon. (See MINERAL WATERS.)

Bedford and Gettysburg in Pennsylvania, are also resorted to for their mineral waters. Anderson's Spring, at the former place, contains iron in combination with other valuable ingredients, and the spring at Gettysburg contains a proportion of lithia, rendering its water valuable in the case of gouty, rheumatic, and dyspeptic subjects.

The White and Red Sulphur Springs in Virginia, are popular places of resort, as are also the Alum Springs at Rockbridge and Church Hill, in the same State. In old ulcers and certain cutaneous affections of a chronic character, these alum waters are particularly serviceable.

The pleasant little town of Aiken in South Carolina, six hundred feet above the level of the sea, is singularly free from all malarial influences during the whole year, and is an excellent place of refuge for those who have been a long time suffering from disease of an intermittent or remittent character, as well as for the weak-lunged, who cannot endure either the dry cold of the North-Western States, or the moist heat of Florida and Texas.

Florida has annually more health-seekers than any other portion of the continent. Its comparative freedom from miasmatic vapors, and its singularly equable temperature, render it a very desirable residence for the consumptive and bronchitic, especially that portion of it near the Miami river in the southeast. Jacksonville, with its superior accommodations, is the principal resort for invalids, whence, as strength permits, they branch off to the various springs and other watering-places throughout the healthy portion of the State.

Corpus Christi in Texas, possesses about the same temperature as Jacksonville, Florida, and is annually visited by hundreds of visitors with weak lungs. Austin, San Antonio and Galveston, in the same State, are also popular places of resort among health-seekers.

The Hot Springs of Garland County, Arkansas, are in the vicinity of the Ozark Mountains, and are from six hundred to seven hundred feet above the level of the Gulf of Mexico. A quantitative analysis of the water of these springs shows them to contain very valuable ingredients, rendering them extremely serviceable in the treatment of rheumatism, scrofula, asthma, disease of the kidneys and bladder, and all disorders of menstruation. Arkansas possesses the smallest percentage of deaths from consumption of any State in the Union, a fact well worthy of consideration by the weak-lunged.

Nashville in Tennessee, and Louisville in Kentucky, are favorite places of resort for those seeking refuge from the debilitating effects of the extreme heat farther south.

In Michigan, Eaton Rapids, Grand Haven, and St. Louis, with their famous magnetic mineral springs, so useful in the treatment of rheumatism; Grand Ledge, St. Joseph, and Lake Zurich, are a few of the most prominent places of resort.

Wisconsin and Minnesota are dotted all over with places noted for the special advantages they offer as residences for invalids. Thousands visit these States every year for the benefit of their health, many of whom go away thoroughly recuperated, and still many more wonderfully improved. In the former State, Waukesha is famous for the Bethesda and Glenn springs, which are said to be wonderfully efficacious in the treatment of diabetes, Bright's disease, rheumatism, female weakness, diseases of the kidneys and bladder, and many other chronic affections. Sparta, in the Upper LaCrosse Valley, since the mineral springs were discovered in 1867, has been both a sanitarium and a fashionable place of resort. Besides these, may be mentioned, Geneva Lake, Devil's Lake, Sheboygan, Green Bay, Madison, Prairie du Chien, Lakeside, Nashotah, and many others, all desirable locations for the residences of health-seekers. Winona, the Queen City of Minnesota, is noted for the salubrity of its climate, and is visited by many invalids. St. Paul, in the proximity of many beautiful lakes, is a famous health-resort; one of the most popular in the United States. Frontenac and Lake City, on the shores of Lake Pepin, Minneapolis, Minnehaha Falls, Owatonna, Albert Lea, Red Wing, Faribault, Mankato, Rochester, and Lake Minnetonka, are all desirable locations, and have many patrons.

Colorado.—For patients suffering from hay fever, asthma, catarrh, and the early stages of consumption, there is no place on this continent equal

to Colorado. Persons far advanced in pulmonary consumption are sometimes sent there, but it is a mistake; they go there only to die. For such, the climate of Minnesota or Western Kansas is far preferable. Denver, Lakin, Pueblo, Canon City, Colorado Springs, Manitou, and Hartsel Hot Springs, are the chief places of resort in the Centennial State. The water of the latter place is said to be very serviceable in the treatment of rheumatism, asthma and neuralgia.

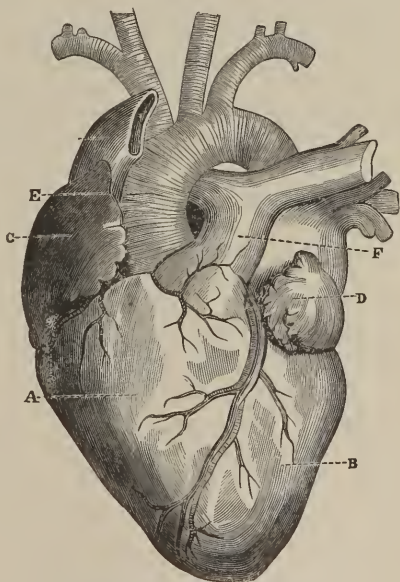
The climate of the National Park and Yellowstone Lake Regions, in Wyoming Territory, either as pleasure resorts or as resorts for invalids, is rarely equalled; and the scenery is probably unequalled anywhere in the world; and as these regions become more accessible, they will be converted into a great national sanitarium.

California is visited by many consumptives and rheumatics with marked benefit. The reader is referred to the article CONSUMPTION, for further information concerning the Golden State as a health-resort for the consumptive. (See MINERAL WATERS, CLIMATE, ACCLIMATIZATION, CONSUMPTION, TRAVELLING, HEALTH.)

HEALTH, TENDENCY TO. (See DISEASE.)

HEARING. (See EAR, DEAFNESS; EAR, DISEASES OF THE; CERUMEN.)

HEART, *hjärt* [Ang.-Sax. *heorte*, Lat. *cor*], the great central organ of the circulation of the blood, is a hollow muscular organ in the form of an irregular cone, placed obliquely in the lower or front part of the thorax, and inclining most to the left side. The base is directed towards the spine, and corresponds with the fourth and fifth dorsal vertebræ, while the apex points between the cartilages of the fifth and sixth ribs on the left side. The size of the heart is generally computed to be a little more than that of the closed fist of the individual. It is enclosed in a membranous bag, called the pericardium, but loosely, so as to allow free motion. It contains four cavities—two at the base, termed auricles, and two at the apex, named ventricles. The right auricle has four apertures—one from the superior vena cava, by which the blood is returned from the



THE HEART AND LARGE VESSELS.

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|---------------------|----------------------|
| A, Right Ventricle. | D, Left Auricle. |
| B, Left | E, Aorta. |
| C, Right Auricle. | F, Pulmonary Artery. |

upper portion of the system; one from the inferior vena cava, returning the blood from the lower parts of the system; one from the coronary vein, by which the blood is returned from the heart itself; and one into the right ventricle. The blood passes from the right auricle into the right ventricle, the entrance to which is guarded by a fold of the lining membrane, forming a valve, called the tricuspid, from its presenting three points. The blood is sent from the right ventricle into the pulmonary artery, by means of which it is conveyed to the lungs. The entrance to the pulmonary artery is guarded by three semilunar valves, which prevent the blood from again flowing back into the ventricle. The blood is returned from the lungs to the heart by the pulmonary veins, which convey it into the left auricle. From this it is sent into the left ventricle, the entrance into which is guarded by the mitral, or bicuspid valve, consisting of two pieces, of which the right one is much larger than the other. The left ventricle has its walls much thicker than the right, and forces the blood into the aorta, for distribution over the entire system. At the commencement of the aorta, there are three sigmoid or semilunar valves, as in the pulmonary artery, for preventing the blood from returning. The heart of a fœtus differs from that of an adult, in having a foramen ovale, through which the blood passes from the right auricle to the left. The exterior fibres of the heart are longitudinal, the middle transverse, and the interior oblique. The contraction of the heart is termed systole; its dilatation, diastole. (See ARTERY, VEINS, ANATOMY, CIRCULATION OF THE BLOOD; HEART, DISEASES OF THE.)

HEART-BURN, *hört'-burn*, is a burning or irritating sensation, felt either at the pit of the stomach or top of the throat, and occasioned by undue acidity, or by acrid matters in the stomach. It is generally relieved by an alkali—potash, soda, magnesia, or chalk—which neutralizes the acid. It is not, however, advisable to have too frequent recurrence to these palliative remedies, for they are only palliatives, they can not be taken habitually without weakening, not only the stomach, but the system generally. Heart-burn cannot continue to recur without there being an error somewhere; either the diet is badly regulated, or the digestive organs require something more than simple neutralization of the superabundant acid. This acid is a badly formed gastric juice, and if it is neutralized, whatever digestive power it might possess is destroyed, consequently the stomach is called upon to secrete another supply before the food can be digested—a call upon its powers which cannot fail to be injurious. Moreover persons finding how quickly a dose of alkaline medicine removes the uncomfortable sensation of heart-burn, are very apt to trust to the palliative, and continue their indulgences, rather than to practise the self-denial requisite to effect a cure of the cause.

Some persons find Spanish liquorice a good palliative in heart-burn. Twelve grains of bismuth, with 5 grains of aromatic powder, taken three times a day, in a little milk, will seldom fail to relieve. If there is much flatulency, Gregory's powder, in $\frac{1}{2}$ dram doses, is good, and where the pain is great, 5 drops of laudanum may be taken with each dose. (See DIET, DYSPESIA, DIGESTION, ACIDITY OF THE STOMACH, WATER-BRASH, ETC.)

HEART, DISEASES OF THE. The heart, from the important part which it plays in the animal economy, is subject to various serious, and often fatal diseases. Like the other viscera, it is removed from the eye, so that little knowledge of its condition can be obtained by inspection; and hence we must have recourse to other means. The ear is the principal means of obtaining a knowledge of the state of the heart, and by auscultation and percussion (which see) we are enabled to detect the existence of various diseases. The heart gives out two sounds, known as the first and second, which are distinguished from each other. The first sound is longer than the second, and the interval between the first and second sounds is shorter than that between the second and first. They have been compared to the two syllables *lupp, dupp*. Any manifest alteration in these sounds is indicative of the existence of disease. They may be high or low, clear or dull, muffled, rough, intermittent, etc. Murmurs or regurgitant sounds may arise from diseases of the valves. The power of distinguishing between the normal and abnormal sounds of the heart, and of the causes producing the latter, can only be obtained by lengthened experience. Diseases of the heart are usually divided into two classes—(1) functional or nervous; and (2) structural or organic. Chief among the former are palpitation, syncope, or fainting, and angina pectoris (which see). They are chiefly to be met with in persons of a naturally nervous temperament, more especially women suffering from hysteria, or other like complaints, and may be induced by great mental excitement. In such cases great attention should be paid to the general health, and, by means of tonics, sea-bathing, and gentle open-air exercise, the system is to be strengthened. Violent exertion, and strong mental excitement, are particularly to be avoided. Among the principal organic diseases to which the heart is subject are pericarditis, carditis, endocarditis, atrophy, hypertrophy, dilatation, and valvular disease.

Pericarditis, or inflammation of the pericardium, may be induced by exposure to damp or cold, or by other causes, which give rise to inflammation in other parts. It frequently arises from acute rheumatism, or from Bright's disease. It is characterized by great tenderness over the region of the heart, amounting when pressed, to sharp cutting pains which

prevent the patient from lying upon the left side. If, as is usually the case, the pleura is involved, there will be acute pain on coughing or drawing a deep breath. Sometimes the attack is not so severe, and only a slight pain is felt, or only a sense of heaviness and oppression. Generally the action of the heart is increased, sometimes so much so as to constitute palpitation. Frequently there is a considerable quantity of fluid effused into the cavity of the pericardium, which is sometimes externally visible by the bulging out over that part. Its mode of treatment depends very much upon the particular circumstances of each case. Where the disease is rapid and violent, bleeding may be of great service; but this course is not so much relied on or practised now as formerly. The bicarbonate of potash, in $\frac{1}{2}$ drain doses every two or three hours, is recommended, together with opium, to relieve the pain and restlessness. Poppy fomentations, or linseed-meal poultices, applied to the part, serve to relieve the pain, and the vapor-bath will usually be found beneficial. The diet should at first be light and nourishing; but if the patient is very weak, stimulants will be necessary, and afterwards the system should be strengthened by tonics.

Carditis, or inflammation of the heart itself, sometimes occurs, but it is usually accompanied with inflammation of the pericardium; the symptoms in both cases are the same, and the treatment will, consequently, be similar in both.

Endocarditis.—The like remarks also apply, in a great measure, to endocarditis, or inflammation of the interior lining membrane of the heart, which is usually accompanied by one or both of the above. In this case there is more or less of fever and anxiety, and a peculiar sound of the heart is heard upon auscultation.

Atrophy, or a wasting of the heart's substance, arises from a deficiency in the supply of nutritive matter. It is usually accompanied by general emaciation, and will be pretty sure to terminate in death. When the heart is examined after death, its tissues are found to have undergone a change, and instead of a striped, to present a homogeneous appearance. This is called *fatty degeneration*. The treatment is to strengthen the system by tonics, wholesome and nutritious diet, open-air exercise, sea-bathing and the like.

Hypertrophy, or enlargement of the heart, on the other hand, is the result of an excess of nutrition, the nutritive process appearing to go on more rapidly than the absorbent. In this way the heart is often greatly enlarged in bulk, and its operations seriously interfered with. It is usually distinguished into three kinds: (1) simple, when the walls of the heart, or its divisions, are thickened, without any diminution in the capacity of the cavities; (2) eccentric, or aneurismal, when the walls

are thickened, and the cavities likewise enlarged; and (3) concentric, when the cavities are diminished in proportion to the thickening of the walls. The first of these is least common, and the second the most frequent; and any of them may effect a single cavity or the whole heart. From the force with which the blood is propelled in such cases being greatly increased, the tendency is to produce hemorrhages, aneurism of the aorta, apoplexy, etc. The pulsations are frequently regular, but strong, sometimes even visibly raising the bed-clothes, and the chest is bulged out over the part. Rest, abstinence and more or less depletion, according to circumstances, are the proper means to be employed in such a case; and usually, with care and perseverance, the symptoms will be much alleviated.

Dilatation of the heart is where one or more of the cavities are enlarged in size without the substance of the heart itself being increased. It is sometimes caused by increased action of the heart, and may be produced by excessive exertion or strong excitement of any kind; it frequently also arises from want of sufficient muscular strength in the heart itself, or from some obstruction to the free passage of the blood. It is characterized by want of vigor in the circulation, and by feebleness and inability for exertion in the patient: he will often be exhausted by the loss of even a small quantity of blood and may even be carried off during a trifling hemorrhage. Attention to the general health, so as to strengthen the patient and restore the circulation to its normal state, while all exciting causes are to be avoided, are the means to employ in such circumstances.

Valvular disease of the heart.—The valves of the heart are subject to a variety of diseases which interfere with their proper action: these are among the most easily detected of the organic diseases, on account of the sounds produced by them. The valves frequently become thickened, so that they do not act freely, or close imperfectly, leading to obstruction or regurgitation of blood. Being connected with the endocardium, or internal lining membrane, diseases of the valves often result from repeated attacks of endocarditis. These obstructions tend to produce oppressions of the breath, apoplectic fits, sanguineous and serous congestions—as hæmoptysis, albuminuria, dropsy, etc. The mode of treatment in such cases will depend upon the particular symptoms present.

It would be quite profitless in this work to enter into anything like detail respecting diseases of the heart or their treatment; disorders so varied in their nature and symptoms can only be properly investigated and managed by a medical man, conversant with the mechanism and the functions of the human frame at large, and in their relations of mutual dependence.

As might be expected, affections of the heart generally, are evidenced by pain in the chest, difficult breathing, cough, palpitation, etc.; and at other times by faintings, giddiness, irregular pulse, etc.; but there is not one of these symptoms, or any combination of them, which may not be developed under certain bodily conditions, although the heart is perfectly sound; none, therefore, need alarm themselves merely because such symptoms occur; they happen at times more or less to all, still they ought not to be neglected; if they continue to recur, a medical man should be consulted. If there is no disease the mind is set at rest, and any general disorder which may have caused the symptoms will probably be rectified. The above cautions are given because there is no class of diseases of which people are so apt to fancy themselves the subjects as those of the heart; and the more they think of the symptoms, the more likely are they to continue or increase, from an organ so intimately connected with the emotions of the mind as the heart. Again, even if the heart be unaffected, it is by no means advisable to permit it to continue to be functionally disordered, either by mental emotion or by sympathy with other organs, for the functional disorder may end in the organic disease; that it does so sometimes is evident from the fact, that there is no more fertile source of heart disease, than those convulsions, either commercial or political, which occasionally agitate society.

If disease of the heart, either incipient or confirmed, does exist, it cannot too soon be discovered by examination, nor the necessary precautions and regulated mode of life too soon adopted: for with these precautions, a large majority of persons who are the subjects of heart affection, may not only continue to live for years, sometimes many years, but to enjoy life. True, the knowledge to any one that he is himself the subject of heart disease may be uncomfortable, but it cannot be unprofitable; he may be aware that heart diseases are sometimes apt to have a sudden termination, and that his life may be somewhat more in jeopardy than that of an unaffected person; but surely to every right-thinking man, this fact would rather be an argument why he should know his real condition; the possibility of his being called away from the affairs of this life without warning, should be a reason for his keeping them well arranged; and still more important, should it be a reason that in conducting his earthly stewardship, he should do it, not only with reference to this world, but to give account of it in another; and when the many chances and contingencies of life are considered, the consciousness of being the subject of heart disease amounts to little more than such contingencies assuming a more prominent position in the mind, and to the individual it may be a merciful dispensation. It may seem to some that in writing thus the author is assuming the character of the

clerical rather than of the medical adviser; it is not so, it is but taking advantage of the privilege which falls to the lot of the physician, when he has in his power times and opportunities in his relations with society, when the word in season cannot be out of place, as far as the welfare of those entrusted to his care is concerned.

The causes of affection of the heart are very numerous; as already noticed, mental disturbance and agitation is a most frequent one, also mental depression and grief, which if long-continued, appear to exert much influence over the organ, and to make the phrase “a broken heart,” not altogether a poetical fiction. Violent passion strongly affects the heart—its indulgence may lay the foundation of disease, which its repetition strengthens, and may bring to a fatal termination. Rheumatism, or rather rheumatic fever, is probably another of the most fertile sources of heart affection. In this disease, inflammation of some portion of the membranes covering or lining the heart is apt to occur, and to be followed by such effects as induce permanent change. Violent physical exertions, dissipation of all kinds, particularly the abuse of spirituous liquors, are all originators of the above affections. It has been said that persons with heart affections may continue to live and enjoy life, but it must be under a more regulated and restricted system of living than is imperative on persons in health. Everything which may be a cause of heart affection, must also be a source of aggravation; all mental or physical excitement especially so. When these are guarded against, the rest may be summed up in—strict attention to the general health. Whenever an old symptom becomes aggravated, or a new one, such as swelling of the legs, etc., appears, medical advice should always be taken. The great secret in these affections consists in maintaining the balance of the various functions, and this can only be done by the judicious management of a medical attendant. (See HEART, AUSCULTATION, PERCUSSION, STETHOSCOPE, ANGINA PECTORIS, HYSTERIA, PALPITATION OF THE HEART, FAINTING, CIRCULATION OF THE BLOOD, HEALTH, TONICS, ETC.)

HEART SPASM, OR ANGINA PECTORIS. (See ANGINA PECTORIS.)

HEAT, *heat* [Ang.-Sax. *hætu* or *heat*]. The imponderable agent which gives to our senses the feeling of heat, is in scientific language called *caloric*, to distinguish it from the term heat, used to designate the sensation. In this article, however, the one term heat is employed. It is not requisite here to enter into a consideration of the nature of heat; its sources, as best known, are the great fountain of it, the sun; there is also the heat developed in the interior of the earth; that produced, or at least manifested, by friction, and also by combustion, chemical

change, and in the bodies of animals (see ANIMAL HEAT), and in some plants.

Heat is interesting in a medical point of view; first, from its effect upon the healthy body—its physiological effect; and second, from its effects as a remedy in disease—its therapeutical effect.

Of the first, the physiological effects of heat, much has been said under ACCLIMATIZATION, ANIMAL HEAT, ETC., which it is unnecessary to repeat here, these articles sufficiently point out the effect of continued high temperature—from 80° to 110° —such as occurs in tropical climates, upon the human body.

When the heat becomes very intense, particularly if there is direct exposure to the rays of the sun, more immediate and marked effects result; the brain may be affected, and sun-stroke, or “*coup de soleil*,” as it is called, be the consequence. This affection, which is not uncommon in our cities, is sometimes also witnessed in the case of harvest-laborers in this country, in very hot summer weather. The affected person falls insensible, the face flushed and swollen, and the vessels beating violently. The most efficient remedies are said to be pouring cold water on the head, and the administration of a small quantity of stimulant—ammonia or brandy. (See SUNSTROKES.) The skin of persons exposed to extreme heat is liable to be affected with what is called “prickly heat;” an eruption of small pimples, or of minute blisters. In either case, the use of a tepid bath, with a little lead lotion, will allay the symptoms; and it may be well to take some cooling saline aperient. (See PRICKLY HEAT.)

Although continued exposure to heat produces these effects, it is now well known, that the living human body is capable of supporting, with impunity, exposure to an atmosphere of very elevated temperature, considerably above that of boiling water, provided the air be dry. The development of unusual heat at any part of, or over the whole body, is usually an attendant on feverish and inflammatory attacks. In scarlet fever, and in inflammation of the lungs this is particularly the case.

It has lately been proved by a most extended and careful series of experiments, that 98° Fahrenheit is the average temperature of the human body in health, and that in fever and inflammation, the temperature (as ascertained by a glass hand-thermometer, placed in the arm-pit) exceeds this by 4° , 6° , or 8° . This is no less the case when the patient complains of cold and shivers, for while the skin feels cold, the blood is heated.

The use of heat in the treatment of disease is very frequently alluded to in this work, more especially because it is not only one of the most extensively useful, but also one of the safest and most generally applicable

remedial agents which can be placed in unprofessional hands. Heat may be used as a remedial agent, simply as a soother, or—if we may be allowed the expression—an anodyne. In cases of severe pain such as colic, gall-stones, gravel, etc., heat properly applied, seems to act as heat simply, upon the nervous system, exerting an anodyne effect and relieving the spasm. For this purpose it may be used, by means of bottles or tins filled with hot water, hot bricks, etc; but these solid bodies are not so useful or pleasant as other more yielding agents; and bags filled with heated grain, oats, salt, bran, or some such material are to be preferred. Elastic cushions, which can be filled with hot water, are also admirable for the purpose. When a derivative action (see DERIVATIVE) is required, as it is in inflammation and inflammatory pain, then heat with moisture must be used, and nothing answers better than the agency of moist heated bran. The great effect of the heat and hot vapor when used, in these cases, is to produce perspiration from the part, and thus to combine this means of relief with the anodyne action of the elevated temperature. The use of heat, especially of moist heat, in the treatment of disease, is especially pressed upon the attention of the unprofessional reader, for it is a remedy almost always procurable, and almost always safely useable. There are, however, a few exceptional cases, in which the use of heat is not desirable. These are such as call for astringing rather than relaxing. Bleeding from, and swelling of various parts may be increased by heat, which must therefore be avoided. (See ANIMAL HEAT, BRAN, FOMENTATION, POULTICE, ETC.)

HEATING HOUSES. (See HOUSES.)

HECTIC FEVER, *hek'-tik* [Gr. *hektikos*, habitual], is an intermittent form of fever which occurs in the latter stages of consumption, and also of other diseases of a slow wasting character. The paroxysm of hectic, usually comes on towards six o'clock in the evening, the person becomes heated, perhaps thirsty, the eyes are brighter than usual, the cheeks reddened—sometimes beautifully colored—and display the circumscribed “hectic flush,” at the same time an almost morbid elevation of spirits is not uncommon. Towards midnight, the stage of fever is succeeded by that of perspiration, which increases as morning approaches, till towards four or five o'clock the patient is completely soaked in moisture and is left in a state of painful exhaustion. (See CONSUMPTION.)

HEDEOMA PULEGIOIDES, *he-de-o'-ma pu-le'-je-oi'-deez*, or American pennyroyal, a plant belonging to the Nat. order *Lamiaceæ*. It is common to all parts of the United States and Canada, and is known by the common names squaw-mint, tick weed and stinking balm. It is an aromatic stimulant, diaphoretic and emmenagogue, and is used in flatulent colic

and sick stomach. The infusion given warm will promote perspiration and also the menstrual discharge. Dose of the fluid extract, 2 to 4 teaspoonfuls; the infusion may be taken freely. (See INFUSION.)

HEDERA HELIX, *hed'-e-rə hé'-liks*, or ivy, an evergreen creeper, belonging to the Nat. order *Araliaceæ*. It is common all over the United States and Canada, as well as Europe. The leaves and berries are the parts used; the former, in decoction (see DECOCTION), has been found a useful application in salt rheum and itch; the latter are emetic and cathartic. They are not much used. (See POISON IVY.)

HELIANTHEMUM CANADENSE, *he-le-an'-the-mum kan-a-dense'*, or frostwort, a perennial plant, belonging to the Nat. order *Cistaceæ*. It grows on dry, sandy soil throughout the United States and Canada, and is known in some localities as frostweed, rock rose and scrofula plant. It is tonic, astringent, and alterative, and has been used in scrofula and some cutaneous diseases, and as a gargle in scarlet fever. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the syrup, a tablespoonful three or four times a day. The infusion is used locally as a wash. (See INFUSION.)

HELIANTHUS ANNUUS, *he-le-an'-thus an'-nu-us*, or sunflower, an annual plant belonging to the Nat. order *Asteraceæ*. It grows throughout both Europe and America. The seeds have a great reputation as a diuretic. The infusion may be taken freely. (See INFUSION.) Planted round a dwelling in marshy districts, sunflowers are said by good authorities to prevent miasmatic diseases, such as ague, and are often planted in large numbers for that purpose.

HELLEBORE, AMERICAN. (See VERATRUM VIRIDE.)

HELLEBORUS NIGER, *hel-le-bo'-rus ni'-jur*, or black hellebore, a plant belonging to the Nat. order *Ranunculaceæ*. It is a native of Southern Europe, and from flowering at Christmas time, is called the Christmas rose. The fibres of the roots are the parts used medicinally. In proper doses it is a drastic cathartic, diuretic, anthelmintic and emmenagogue. Some physicians consider it superior to all other medicines for promoting the menstrual discharge. Dose: of the fluid extract, 10 to 20 drops; solid extract, 1 to 5 grains; tincture, $\frac{1}{2}$ to 1 teaspoonful, three times a day. Its properties are very powerful, and it should be used with great caution.

HELONIAS DIOICA, *he-lo'-ne-as di-oi'-kə*, or unicorn root, belonging to the Nat. order *Melanthaceæ*, a perennial plant, growing one or two feet high, sometimes known as drooping starwort and colic root. It grows in most places all over the United States and Canada. The root is the part used in medicine. It is tonic, diuretic and vermifuge, and is beneficial in dyspepsia, loss of appetite and colic. It exercises a marked curative influence on the uterus and its appendages, whites, suppressed and painful

menstruation, and predisposition to miscarriage. Prof. Ives recommends it as efficient in checking nausea and vomiting. Dose: of the fluid extract, 1 to 2 teaspoonfuls; syrup, $\frac{1}{2}$ to 1 fluid ounce.

HEMATURIA, OR BLEEDING FROM THE BLADDER. (See URINE.)

HEMICRANIA, OR BROW AGUE, *hem-e-kra'-ne-a*, called by the French *Migraine*, and commonly known in this country as megrim, is a headache affecting the brow, and sometimes extending over one side of the head alone, leaving the other unaffected. In a great many instances it is periodical in its character, attacking the person at a certain hour on successive days, continuing during a defined period, and again as regularly subsiding; not uncommonly, however, it continues in an unmitigated degree for many hours, or even days. It is frequently connected with disorder of the system generally; failure of appetite, sickness and mental depression being usual accompaniments.

When distinctly periodic in its nature, it yields readily to the administration of quinine. After the bowels have been freely acted upon by some laxative medicine, from 5 to 10 grains of the compound colocynth pill, the quinine may be given in doses of from 2 to 5 grains every two or three hours until the pain ceases. When not distinctly periodical in its occurrence, and when evidently associated with general weakness, the preparations of iron are strongly indicated. The tincture of iron may be given in doses of from 10 to 20 drops in water thrice daily, or citrate of iron and quinine in 2 or 3 grain doses three times a day, or the syrup of the iodide of iron in doses of from 10 to 20 drops for a child, 20 to 30 for an adult, thrice daily. The sulphate of iron, 1 or 2 grains in combination with 1 to 3 grains of extract of aloes, in the shape of a pill, three times a day, is an excellent preparation for this purpose.

HEMIPLEGY, *hem'-e-plej-e*, paralysis of one side of the body. (See PARALYSIS.)

HEMLOCK. (See PINUS CANADENSIS.)

HEMLOCK, POISON. (See CONIUM.)

HEMORRHAGE, OR BLEEDING, *hem'-or-raj* [Gr. *haima*, blood; and *rhegnumi*, I break or burst], is the escape of blood from its own proper vessels, but the term is usually applied to cases in which the effusion takes place in considerable quantity, and is rapidly poured out. Hemorrhage may be either external or internal; in the former instance, it is almost invariably the result of wound of some blood-vessel, either artery or vein; in the latter, the blood may also be poured out by a large vessel, but generally, it is exuded through the lining membrane, or into the tissues of the part in which it occurs, from the minute vessels—so minute indeed, that after fatal cases of internal hemorrhage, the closest

examination may fail to detect any visible opening, or openings from which the blood can have escaped.

For information respecting external hemorrhage, or such as occurs from arteries or veins, the reader is referred to the articles under these heads. (See ARTERY, ARTERIAL HEMORRHAGE, VEINS, ETC.)

Internal hemorrhage, when it does occur from a large vessel, is the result of that vessel having been opened by disease, such as aneurism (see ANEURISM), or by ulceration; but these instances are comparatively few. The head is an exception, however, to this remark, for hemorrhage within its cavity is almost always occasioned by the rupture of a vessel. (See APOPLEXY, CONCUSSION OF THE BRAIN.) Hemorrhage from piles is also exceptional. (See PILES.)

Internal hemorrhage may be either of an active or a passive character; that is, in the former case the effusion of blood is preceded and accompanied by feverish symptoms, quickened pulse, thirst, with a sensation of fullness, and heat in the part whence the blood flows; in the latter these symptoms are absent. The effect of active hemorrhage is, generally, to give relief, either to the constitution at large, or to the particular part; indeed, by some, active hemorrhage is regarded as a natural cure of what might otherwise prove an attack of inflammation. Passive hemorrhage, on the other hand, almost invariably weakens; it is the result of weakness and relaxation, which its occurrence tends to increase.

As regards the management of or interference with continued cases of hemorrhage, unprofessional persons ought not, and cannot with any propriety have anything to do; but when the occurrence itself actually takes place, a knowledge of the best mode of proceeding may be of much service, for though in the case of active hemorrhage, benefit may, up to a certain point, be derived from the circumstance, the process might, possibly, especially if improperly managed, run on to an undue extent, and even affect life.

Hemorrhage is more liable to occur from some parts of the body than others, and particularly from the mucous membranes which line the nasal and air-passages generally, from the alimentary canal, and genito-urinary organs. "Another important fact in respect to hemorrhages by exhalation is, that they proceed more frequently from certain parts of these mucous membranes than others, according to differences in age. Thus, in children they are most common from the membrane that lines the nasal cavities; in youth, from the mucous membrane of the lungs and bronchi." In middle life, from the bowels or bladder, or in the head.

When an individual is suddenly seized with bleeding or hemorrhage from any part, as a general rule, perfect quietude of body and mind

should be observed, and cold is the simplest and readiest astringent, applied in the various forms of cool air, cold water, etc. Medicinal astringents (see ASTRINGENTS) may be resorted to, and should the resulting depression be extreme, stimulants may be required, but their administration calls for the greatest caution, and it must be remembered, that the state of depression may be the chief security to the patient against an immediate return of the bleeding.

The causes of hemorrhage are various. As might be expected, general plethora, or superabundance of blood is a common one, hence, persons who take but little exercise, and live freely, are liable to it more than others. Perhaps the most general cause of hemorrhage is congestion, or accumulation of blood in any one part or organ of the body, in consequence of some impediment to the circulation; thus, disease of the heart, by damming up the blood in the lungs, or disease of the lungs themselves which impedes the flow, may, either of them, cause spitting of blood; or disease of the liver may cause hemorrhage from the bowels.

Bleeding from the nose (Epistaxis) is sometimes very profuse, and, either on this account, or from frequent repetition, may be the source of great weakness, in constitutions that can ill afford the drain, for its occurrence is not uncommonly associated with tendency to chest affection. Many various methods for its suppression are had recourse to, but cold applied to the forehead, spine, or other parts of the body, is the most general. Raising both arms above the head has been said to stop the flow quickly, or a small quantity of solution of alum (see ALUM), as strong as it can be made, may be thrown up with a syringe; or a piece of linen, soaked in the solution, may be stuffed up the nostril. From 10 to 15 drops of dilute sulphuric acid may be given in water at intervals, according to the nature and persistence of the attack.

Bleeding from the nose, in persons advanced in life, must be much more cautiously interfered with than in the young. In the former, it is generally preceded by symptoms indicative of congestion about the head and, consequently, is a natural relief. It may, of course, go to an extreme extent, and require checking.

Bleeding from the lungs, or spitting of blood, is generally preceded by symptoms indicative of undue determination or congestion of blood to, or in these organs. Oppressed breathing, cough, pain in the chest and feverish symptoms usually precede the attack, and just previous to it a saltish taste is generally perceived. Bleeding from the lungs may occur in every degree, from a mere tinge of the expectoration, to the copious coughing up of fluid blood. The blood is coughed up, whereas, when it comes from the stomach, it is vomited, a distinction which

appears evident enough, but which is not always readily made in practice. The management of hemorrhage from the lungs must be that recommended for hemorrhage generally. Until medical assistance can be procured, perfect quiet is to be observed, cool air, especially on the chest, freely admitted, and cold, or iced and acidulated drinks given plentifully. Alum will also be found useful. (See ALUM.) Should the attack continue, and medical assistance still be absent, cupping on the chest (see CUPPING), or between the shoulders, might be had recourse to. Sulphuric acid may be given as recommended for bleeding from the nose, or in an extreme case, when medical aid is far distant, 3 grains of sugar of lead may be given, made into a pill with crumb of bread, every two, or three, or four hours, being washed down by a draught of vinegar and water. The expressed juice of the common nettle is sometimes popularly used, and, it is said, efficaciously, to check bleeding from the lungs; the dose 1 teaspoonful three times a day. The inhalation of the smoke from the burning leaves of the belladonna, is said to check the immediate flow of blood from the lungs. For this purpose 1 dram of the cut and dried leaves is to be thrown upon glowing coals. In tendency to passive hemorrhage from the lungs, Dr. Theophilus Thompson recommends the following lozenge to be used as occasion may require. Take of powdered gum arabic, and of white sugar, each 3 drams; powdered tragacanth $1\frac{1}{2}$ drams; alum, 2 drams; catechu, 3 drams; rose-water sufficient to form a mass which is to be divided into sixty lozenges. When the cough is troublesome, it will be best allayed by a few drops of laudanum.

The causes of hemorrhage from the lungs are such as have been named above; persons of scrofulous constitution, or who have any malformation of the chest are most liable to suffer from it. It rarely occurs in children. The exciting causes of this form of hemorrhage are such as call the lungs into active, strong, or continued exertion, such as violent bodily movements, much loud exercise of the voice, playing on wind instruments, etc.; these things must therefore be sedulously avoided by those who have any tendency to the disorder. Temperance and moderation, strict attention to the condition of the bowels, and to any accidental disorders of the chest, will be the best safeguards. Whilst treating of this subject, it should be mentioned that persons are often needlessly much alarmed, from thinking they are expectorating blood, whilst the fluid simply comes from the throat or gums, or, it may be, is the consequence of blood from the nose trickling down the back of the throat. It perhaps is scarcely necessary to add, that the above details of management are not meant to stand in the place of competent medical advice. This should never be dispensed with in so serious a disorder as spitting of blood.

In hemorrhage from the stomach (*Hematemesis*), the blood is vomited, not coughed up; its causes and treatment, modified, of course, by the difference in the organ, and its site, are similar to those detailed in hemorrhage from the lungs. Vomiting of blood in young females, is not a very uncommon accompaniment of disorder of the menstrual functions, and can scarcely be considered a dangerous affection. The restoration of the proper excretion is, of course, the most effectual remedy.

Vomiting of blood may happen in consequence of blood which has been effused from the nose having been swallowed; in this case it is generally darkened by the digestive action of the stomach. Blood from the lungs is generally much more frothy than that ejected from the stomach. In either case, the more florid the hue, the more active or inflammatory the hemorrhagic tendency. Profuse discharge of blood from the bowels often occurs in the course of fever, or from diseases of the abdominal organs, such as the liver, etc. Flow of blood from the bladder (*Hematuria*), will be adverted to under article URINE. (See ACORTION, ACCIDENTS, ARTERY, ARTERIAL HEMORRHAGE, AXILLA, CHILDBED, PILES, VEINS, WOUNDS, STYPTICS.)

HEMORRHOIDS. (See PILES.)

HEMP, INDIAN. (See INDIAN HEMP.)

HENBANE. (See HYOSCYAMUS NIGER.)

HEPATIC, *he-pat'-ik*, belonging to the liver. (See LIVER.)

HEPATICA AMERICANA, *he-pat'-e-ka a-mer-e-ka'-na*, or liverwort, an American plant belonging to the Nat. order *Ranunculaceæ*. It grows in the woods and on the sides of hills and mountains, and is known also as liver leaf and kidney liver leaf. The whole plant is used in medicine. It is a mild demulcent tonic and astringent, and has been employed with success in affections of the liver and lungs, and also in the early stages of diarrhœa and dysentery. Dose: of the fluid extract, 2 to 3 teaspoonfuls; of the syrup, 1 to 2 fluid ounces. The infusion may be taken freely. (See INFUSION.)

HEPATITIS, OR INFLAMMATION OF THE LIVER, *hep-a-ti'-tis* [Gr. *hepar*, the liver], occurs in two forms, the acute and the chronic. It is a common disease in tropical countries, but is comparatively rare in northern climes.

Causes.—Acute inflammation of the liver as already stated, is most generally due to the influence of a tropical climate; when not occurring in this way, it is almost always the result of mechanical injury, inflammation of the veins, dysentery, or the sequence of intemperance and the abuse of alcoholic stimulants.

Symptoms.—Acute pain, of a darting character about the right breast, increased by inspiration and by lying on the right side, and oftentimes

extending to the right side of the neck and the right shoulder and collar-bone. The breathing is short and hurried, and there is a slight cough, nausea and vomiting are present, and the patient is troubled with hiccup. The skin is hot and dry, the mouth parched and the urine scanty, and there is great thirst. The spirits are depressed, the whites of the eyes are tinged with yellow, the countenance is sallow, and the bowels are constipated. When they do move, the evacuations appear to be destitute of bile and look like clay.

Treatment.—Some few years ago, the usual plan of treating this disease, as many others, was to bleed the patient freely from the arm, to apply leeches over the inflamed organ, and to give mercury internally, but most physicians of the present day have discarded all these remedies as useless, in the cure of this disease, and nourishing food and strengthening mixtures have been found more successful; such as iron and quinine, or the mineral acids with bark.

Take of Sulphate of iron.....	Twelve grains.
Sulphate of quinine.....	Ten grains.
Dilute sulphuric acid.....	One dram.
Pure water.....	Six ounces.— <i>Mix.</i>

Take 2 tablespoonfuls three times a day.

Or, if the mineral acids be preferred:

Take of Dilute nitro-muriatic acid.....	Half a dram.
Infusion of gentian.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls three times a day.

The congested liver may be greatly relieved by freely acting upon the bowels by some active purgative, and for this purpose sulphate of magnesia is very useful.

Take of Sulphate of magnesia.....	One and a half ounce.
Tincture of henbane.....	One dram.
Peppermint water.....	Six ounces.— <i>Mix.</i>

Give two large tablespoonfuls morning and night.

Inflammation of the liver may terminate in recovery, or may run into the chronic form; in some cases end in suppuration, an abscess being formed in the substance of the liver; or gangrene and death may be the result of acute inflammation attacking this organ. When the hepatic abscess is at length formed, lowering measures do harm—the system should be well supported by animal broths, and wine, and other stimulants; if the abscess be adherent to the walls of the abdomen, it may be carefully punctured, but most physicians think it best to let it break of itself; for if the liver be not adherent, some of the puriform matter will escape into the cavity of the abdomen and give rise to fatal inflammation.

Chronic inflammation of the liver may be brought on by the same

causes as the acute form, or may be the sequel of it, or it may be due to the presence of cancer, hydatids, or scrofulous tubercles, and it is frequently caused by the too free indulgence in spirituous liquors. It is attended with the same symptoms as the acute form, but they are much less severe.

Treatment.—The bowels should be acted on freely, and kept regularly open by saline purgatives.

Take of Sulphate of magnesia.....	Twelve drams.
Carbonate of magnesia.....	Three drams.
Peppermint water.....	Six ounces.— <i>Mix.</i>

Give two tablespoonfuls once or twice a day.

The compound iodine ointment may be rubbed in over the inflamed organ. Muriate of ammonia and the extract of dandelion have been much recommended, and may be thus given:

Take of Muriate of ammonia.....	One-half dram.
Extract of dandelion.....	One dram.
Camphor water.....	Six ounces.— <i>Mix.</i>

Give two tablespoonfuls three times a day.

Blisters applied over the inflamed organ often do good by relieving the hepatic congestion. The patient should take moderate exercise in the open air, and, if he can spare time, should get change of air and scene to counteract the languor, lassitude and depression of spirits so constantly accompanying all kinds of hepatic disorders. The diet should be nutritious, but not stimulating, and the intemperate man must give up his alluring drinks.

Preventive treatment.—Inflammation of the liver is one of those diseases which may be generally prevented by the due observance of the ordinary laws of health. The man who eats regularly, takes moderate exercise, pays proper regard to cleanliness, and as a rule avoids high living and indulgence in alcoholic stimulants and narcotics, will not have much trouble with his liver.

HEPATIZATION, *hep-a-te-za'-shun*, a term applied to a diseased state of a lung in which the spongy character of its texture is lost, becoming hard and solid, and of the nature of liver, whence the name. (See PNEUMONIA.)

HERBS, *ěrbz* [Lat. *herba*], plants which have stems that die down annually to the surface of the ground. As a general rule herbs used in pharmacy should be collected when they are beginning to flower in a dry day about midday, when they contain least moisture; they should then be subjected to a gentle heat, and afterwards spread out and frequently turned, so as to dry quickly.

HEREDITARY TENDENCY, HEREDITARY DISEASE, *he-red'-eta-re* [Lat. *hereditarius*]. The transmission of a tendency towards

certain forms of disease from parents to children, and from ancestry generally to their descendants, has been an acknowledged fact from remote ages; a proof of the unmistakable character and frequency of the incident. Some portions of the body are more liable to be affected by transmission than others, "but no organ or texture is exempt from the chance of being the subject of hereditary disease;" and although some diseases are well known to be much more generally inherited than others, we have no means of determining how far the limitation extends, or whether indeed it does not include diseases generally within its bounds.

Although there are maladies, such as small-pox, which are so directly inherited that the offspring is actually found to be affected with them when born, this is not the common rule, the hereditary taint acting rather by giving the bias to the development of the disease; and it is observed that those children which more nearly resemble the parent in physical conformation, are more likely also to resemble in liability to certain forms of hereditary affections. It is not necessary, however, for the transmission of hereditary disease that it should be developed in the parent, who, although the connecting link between a grandparent and grandchild as regards the disease bias, may yet have been entirely free from the transmitted disorder. In other words, a hereditary tendency to disease seems often to skip over one generation.

Hereditary predisposition may be derived from a parent direct, and from a parent only in whom a certain state of disorder has been developed, independent of previous hereditary influence; whatever debilitates the system, whether it be advanced life, dissipated habits, or the like, is almost certain to affect the children, and may originate a tendency to scrofula in a family previously free from it. Even a transient bodily condition seems frequently to influence the offspring, more particularly as regards the nervous system; drunkenness in the parent produces idiotic children; mental excitement communicates its own tendency.

Again, disease apparently hereditary may be developed in a family without its being traceable in the descent; that is, the children, many, or all of them, may be liable to certain forms of disease, towards which neither the parents nor ancestors generally had displayed any marked tendency. The fact is one not uncommonly met with.

Scrofula and consumption, gout and rheumatism, insanity and paralysis, asthma, epilepsy, blindness, and a good many other diseases, are well ascertained to be transmitted by hereditary tendency. It is not, however, necessary that the tendency should develop itself under the exact form of the disease of the parent; thus, scrofula, instead of showing itself as consumption, may take the form of insanity, or gout may be substituted for gravel.

The practical importance of a knowledge of these hereditary tendencies is self-evident. There are perhaps few, if any, who do not inherit some predisposition to certain forms of bodily disorders; it must, therefore, be not only to the advantage, but it must be the duty of every responsible person to consider what these predispositions are in himself, and to endeavor, as far as circumstances will permit, to avoid their being excited; still more important is it, in the contraction of marriage, to consider whether union with one having similar hereditary tendencies will not certainly entail upon offspring an irremedial predisposition to disease thus devolved upon them from both parents. This argument derives tenfold force if the parents happen to be nearly related by blood, for even in healthy families the marriage and intermarriage of near relatives almost certainly leads to the production of weakened and weakly descendants. (See CONSUMPTION, INSANITY, MARRIAGE, SCROFULA, ETC.)

HERNIA. (See RUPTURE.)

HERPES, *her'-peez* [Gr. *herpo*, I creep], is a disease characterized by inflamed patches, of irregular form and size, comprising clusters of vesicles of minute size; these yield a fluid which dries into a thin incrustation that drops off, seldom leaving any perceptible scar. It is not contagious, and usually runs its course in two or three weeks, requiring no further treatment than perhaps an acetate of lead lotion to allay the smarting, and an aperient to move the bowels if necessary. One form of this disease, herpes zoster, zona, or shingles, makes its appearance in the form of a band encircling half the circumference of the body. This is popularly regarded with great fear, and some people believe that death will ensue if the band completely encircles the body. This, however, is not the case unless the patient be very old and feeble. It is usually preceded or attended by feverish symptoms, languor, loss of appetite, headache, sickness, chills, with frequently severe pains of a neuralgic nature. The febrile symptoms usually subside when the eruption is completed. Very little is necessary in the way of treatment beyond attention to the bowels and regulation of the diet. The local irritation may be relieved by an acetate of lead lotion, and if the pain be severe, opiate fomentations may be applied.

HERRING, *her'-ring*, like the other oily fishes, is apt to disagree with weak stomachs.

HEUCHERA AMERICANA, *hu'-she-ra a-mer-e-ka'-na*, or alum root. This is a perennial plant of the Nat. order *Saxifragaceæ*. It is a native of the United States, and grows in shady places all over the country. The root is the part used, and, as its name indicates, it is a powerful astringent. It has been found useful in dysentery and diarrhœa, and also in most of the hemorrhages. It has the same properties as the cranesbill,

and is used in similar cases. When used internally, the decoction or infusion may be taken in doses of $\frac{1}{2}$ a wine-glassful, three or four times a day. (See INFUSION.)

HICCUP, OR HICCOUGH, *hik'-kup* or *hik'-kof* [Lat. *singultus*], is a spasmodic affection of the diaphragm (see DIAPHRAGM). Generally a trivial and transient inconvenience; its occurrence in the last stages of acute disease is a grave, often a fatal, symptom, indicative of giving way of the nervous system generally.

Continued and obstinate hiccup sometimes occurs in the persons more especially of young females of a hysterical tendency, and may continue for weeks without cessation, except during the hours of sleep, in spite of all kinds of treatment. The causes of ordinary hiccup are generally fasting, or some sudden stimulant taken into the stomach, such as highly-seasoned soup; and the affection generally subsides of its own accord. When inconvenient, nothing is so likely to remove it as some active emotion of the mind suddenly excited. The continued sipping and swallowing of cold water is a frequent domestic remedy; or antispasmodics, such as sal-volatile, may be useful; or a little sugar will often afford relief. In the attacks of continued hiccup above mentioned, a medical man should be consulted; but the disorder will frequently run its course in spite of his treatment. Acupuncture has been said to be a successful mode of treatment.

HICKORY. (See CARYA.)

HIERACIUM VENOSUM, *hi-er-a'-se-um ve-no'-sum*, or hawkweed, a plant belonging to the Nat. order *Asteraceæ*. It is found on dry hills and in pine woods in the northern and eastern parts of this country. It is tonic, astringent and expectorant, and has been found useful in scrofula and in profuse menstruation. The juice of the fresh leaves is reputed to cure warts. Dose of infusion or of syrup, 2 to 4 fluid ounces. (See INFUSION.)

HIGH CRANBERRY. (See VIBURNUM OPULUS.)

HIP-BATH. (See BATHS AND BATHING.)

HIP-JOINT, *hip'-joint*. The hip-joint is formed on the one hand by the head of the thigh-bone, and on the other by the deep cup, or cavity, which is excavated for its reception in the bones of the pelvis, or hips, thus constituting a ball and socket-joint, which, although it may suffer dislocation, can only do so from extreme violence in peculiar directions, and in peculiar positions of the limbs. (See DISLOCATIONS, HIP-JOINT DISEASE, ETC.)

HIP-JOINT DISEASE, OR MORBUS COXARIUS, *hip'-joint diz-ez'* is a disease of the joint just described, to which children of a scrofulous constitution are more peculiarly liable.

Hip disease prevails in cold moist climates, and attacks chiefly children between the ages of seven and fourteen, though it is not unfrequently met with both before and after this time of life.

Symptoms.—The first symptom complained of, is generally pain of the knee, which often exists for months before any indication can be perceived of the true seat of the disease. Sooner or later the patient is observed to walk awkwardly and less vigorously than usual; and when the circumstances on which this difference depends are investigated, it appears that the affected limb is elongated and emaciated—that the convexity of the hip is flattened so that the furrow between it and the thigh is less distinct and more oblique in its direction—and that, in standing, the foot is advanced a little before the other one, with the toe slightly averted, and that the patient does not rest his weight upon it. Pain is now felt in the hip-joint itself, and though aggravated by motion, often becomes more severe from time to time, without any such cause of irritation. It is most apt to do so during the night, particularly when the weather is wet and changeable. In this second stage, the disease remains several months, and sometimes a year or two. At length the symptoms which have been mentioned, either disappear, and the limb recovers its former condition, or they are succeeded by others still more disagreeable. In the latter case, the limb becomes considerably shorter than the sound one; its mobility at the same time being much impaired or altogether destroyed, and permanent rotation either inwards or outwards also taking place. Collections of matter now generally make their appearance, most frequently on the outer side of the thigh, but occasionally in the groin and hip. In some few instances, but very rarely, the fluid of these abscesses is absorbed, but the ordinary course which it follows, is to issue externally through openings formed, either by ulceration, or artificially by the surgeon. The patient then, after a tedious illness, becomes hectic and dies; or recovers with a stiff joint, and a wasted useless limb.

Treatment.—It is of the highest importance as regards ultimate results, that this affection should be placed under proper surgical treatment in the earliest stage in which it can be detected; but its approaches are often so insidious that in most cases it has made considerable advance before it is even suspected by parents that there is anything wrong.

It may be well to know that in some cases, and in certain stages of the disease, great relief, and possibly even permanent benefit, is to be derived from keeping the limb permanently extended, that is, pulled downwards. This can readily be done by means of a weight attached to a bandage wound round the limb, and hung over a piece of wood at the bottom of the bed. (See HIP-JOINT.)

HIRUDO. (See LEECH.)

HISTOLOGY, *his-tol'-o-je*. Histology treats of the minute structures of parts of the human body, discernible only by the microscope. (See ANATOMY, PHYSIOLOGY, ETC.)

HIVES, *hivz*, an eruption of the s in, usually occurring in summer, and recurring many times in the same person. The eruption is characterized by small, red pimples, lasting sometimes a week or two. They appear usually on arms, thighs, neck, back, and occasionally on the face. They give rise to almost intolerable itching. It is frequently caused by the continuous use of oatmeal. The treatment consists in refraining from obnoxious articles of diet, relaxing the bowels with some saline aperient, a seidlitz powder, a teaspoonful of epsom salt, or a dessert-spoonful of effervescent citrate of magnesia. Locally, weak soda water, a teaspoonful of baking soda to a pint of warm soft water, will almost invariably allay the itching. In obstinate cases, arsenic is a useful remedy, but should never be given except by a physician.

HIVES, the croup, a disease characterized by sonorous and suffocative breathing. (See CROUP.)

HIVE-SYRUP, *hive'-sir-up*, compound syrup of squill. (See SCILLA MARITIMA.)

HOARSENESS. (See APHONIA, BRONCHITIS, SORE THROAT, CLERGYMAN'S SORE THROAT, COUGH, CROUP, COLDS.)

HOFFMAN'S ANODYNE, *hof'-manz an'-o-dine*, (compound spirits of ether.) It possesses the stimulating powers of ether with anodyne properties. It is a very useful remedy in cases of general unrest, inability to sleep, etc., depending on nervous irritation from pain, weakness, or other causes. Hoffman's anodyne is also very useful as a carminative, probably exceeding in this respect any of the aromatics. In cases of flatulence, depending upon nervous disturbance (hysteria, etc.) it is especially useful.

In earache, exposing the ear to the fumes of spirits of ether is often attended with great relief. It may be effected by mixing equal parts of the spirits and hot water in a vial and applying its aperture to the external ear. Hiccough is often immediately arrested by 20 to 30 drops of Hoffman's anodyne in 10 teaspoonfuls of some aromatic water. Dose, $\frac{1}{2}$ to 1 teaspoonful in sweetened water.

HOME SICKNESS. (See NOSTALGIA.)

HOMŒOPATHY, *ho-me-op'-a-the* [Gr. *homoios*, like, and *pathos*, state or feeling], is the name given to a system of medical treatment introduced by Samuel Hahnemann, a German physician, in 1796, and now extensively practised, and having many adherents. Hahnemann had observed that Peruvian bark, which acts as a specific in ague, sometimes

produced upon the healthy subject exactly the same symptoms as those of the disease which it served to cure. Continuing his observations in the same direction, he fancied that he had obtained a number of other instances to the same effect; and at length he came to the conclusion that diseases are cured by such substances as produce symptoms similar to them on the healthy body; hence the great doctrine of this sect is, "*Similia similibus curantur*" (similars are cured by similars). Their opponents they term allopathists [Gr. *allos*, other, and *pathos*, state], and assert their doctrine to be, "*Contraria contrariis curantur*" (contraries are cured by contraries.)

HONEY, *hun'-e* [Lat. *mel*], the well-known substance collected by bees from flowers, consists almost entirely of sugar, partly crystallizable, and partly not so; the first being similar to grape sugar, and capable of undergoing at once the vinous fermentation. Honey varies in degree as regards fragrance and taste, according to the flowers from which it is collected, and in some instances, it is even of a poisonous nature, in consequence of being collected from poisonous plants. As an article of diet, honey is wholesome for most persons, although with some it causes acidity, and others it gripes. It is slightly aperient. For medicinal purposes, especially domestically, honey is frequently used, and answers well as a pleasant addition to cough mixtures, etc. Mixed with a little vinegar or lemon-juice, it is useful in cases of sore throat and cough, with adhesive expectoration.

Honey is frequently used mixed with borax in cases of thrush in children, and in sore mouths generally. The form is a bad one in all such cases, and especially in the former disease. (See BORAX, OXYMEL.)

HONEY AND VINEGAR SYRUP. (See OXYMEL, HONEY.)

HONEYSUCKLE BUSH. (See DIERVILLA CANADENSIS.)

HOOD-WORT. (See SCUTELLARIA LATERIFLORA.)

HOOPING COUGH. (See WHOOPING COUGH.)

HOP. (See HUMULUS LUPULUS.)

HOPE. (See PASSIONS.)

HORDEUM, *hor'-de-um* [Lat.], barley, a genus of the Nat. order *Graminaceæ*. The principal species or varieties of cereal barley in cultivation are practically distinguished by the arrangement of the seeds, as two-rowed, four-rowed, and six-rowed. Barley is used dietetically in the manufacture of bread; and, in the form of malt, most extensively in the production of ale, beer, and ardent spirits. It is the common grain in use for the latter purpose in this country. Barley deprived of its husk constitutes pot barley. When both husk and integuments are removed, and the seeds rounded and polished, they form pearl barley,

and this, when ground, is called patent barley. (See BARLEY, BARLEY-WATER, FOOD, ETC.)

HOREHOUND. (See MARRUBIUM VULGARE.)

HORNETS' STINGS. (See BITES AND STINGS.)

HORSEBACK EXERCISE. (See EXERCISE.)

HORSE-CHESTNUT. (See ÆSCULUS.)

HORSE-FLY WEED, OR WILD INDIGO. (See BAPTISIA TINCTORIA.)

HORSERADISH. (See ARMORACIA.)

HORSETAIL. (See EQUISETUM HYEMALE.)

HORSE-WEED. (See COLLINSONIA CANADENSIS.)

HOSPITAL FEVER, *hos'-pe-tal*, a form of typhus. (See TYPHUS FEVER.)

HOSPITAL GANGRENE. (See GANGRENE.)

HOSPITALS, *hos'-pe-talz* [Lat. *hospitalia*, apartments for guests; *hospes*, a guest]. In large towns these benevolent institutions are an inestimable boon to the poor, more particularly in the present defective condition of sanitary arrangements. In them, with the exception of privacy, they have all that the wealthiest in the land can command; skill, cleanliness, food, medicines, and comforts of every kind. It is much to be regretted, that the inhabitants of rural districts are, in a great measure, deprived of the resources of an hospital of some kind, especially in the case of contagious disease invading their crowded cottages.

The construction of hospitals is a subject which has of late years much engaged the thoughts of architects, physicians, and sanitary reformers; and many systems have been proposed as emendations on the old methods. The pavilion, cottage, and corridor styles have been brought up in contrast; but it would be impossible in the present article to enter upon their different advantages. Suffice it to say, that hospitals for the sick should be advantageously situated, well-aired, thoroughly drained, soundly built, and not hemmed in by other buildings; and the rooms and galleries for the reception of the patients should be lofty, well lighted, and effectively ventilated..

It is incalculable how much advantage might accrue to thickly populated districts, and how much good might be done by establishing such institutions as cottage or village hospitals, where the poor might receive all the benefits attending upon first-rate nursing and lodging, and in short all the benefits of hospital treatment without its disadvantages. In most places a cottage or house with sufficient accommodation for six to twelve beds, might be rented at a moderate rate, and many would cheerfully volunteer to do the nursing. (See BED, BED-ROOM.)

HOT BATH. (See BATHS AND BATHING.)

HOT BISCUITS. (See BISCUITS, Hot.)

HOUND'S TONGUE, OR DYSENTERY WEED. (See ECHINOSPERMUM VIRGINICUM.)

HOUSEHOLD MEDICINES, *hous'-hold*. In sections of the country remote from medical aid, or in which even the most ordinary drugs cannot be procured without some difficulty, it is very desirable that every family should be provided with a small stock of whatever medical or surgical material any intelligent person might, with reasonable care and ordinary common sense, employ. There is not the same necessity existing in the case of parties possessing facilities for procuring professional aid, although there is no objection, even in such cases, unless they should place their dependence upon it, instead of seeking proper advice. It is well, however, to be prepared always for all emergencies. Many of the most powerfully curative medicines within reach, are such as can only be used with safety by a physician, and cannot, therefore, be recommended to form part of a domestic medicine chest. And here it is important to say, that whatever drugs are procured, should be purchased from a respectable druggist, and be invariably kept in some secure place, easy of access, under lock and key. This is rendered necessary for two reasons; firstly, that no accident may occur; and, secondly, that the medicines may not deteriorate in value from careless exposure. At a trifling expense, a nicely arranged medicine chest, with little compartments for the separate bottles, and additional room for lint, sponge, adhesive plaster, oiled silk, and other simple appliances that may be deemed necessary, may be procured from any respectable druggist. Where these are not within reach, a few directions to a tinsmith will enable him to construct one very cheaply, of japanned tin, that will answer every purpose. The following list includes all, or nearly all, that would be found requisite in any section of our country. The doses of each may be found by referring to the separate articles under their respective headings. Medicines administered as tonics or alteratives, may usually be taken three or four times a day.

Aloes—In powder and in fluid extract.
 Alum—In powder.
 Ammonia, Carbonate—In glass-stoppered bottle.
 Ammonia, Aromatic Spirit, or Sal-Volatile.
 Ammonia, Solution—In glass-stoppered bottle, for liniments.
 Ammonia, Acetate—(Spirit of Mindererus.)
 Antimonial Wine.
 Anise—Oil or essence.
 Arnica—Tincture for liniments; flowers for fomentations.

Aromatic Powder.
 Assafetida—Tincture and gum.
 Balsam of Tolu—In tincture or syrup.
 Bismuth—Subnitrate or white bismuth.
 Blister—In the shape of plaster or fluid.
 Borax—In powder.
 Bromide of Potassium.
 Buchu—In leaves and fluid extract.
 Calumba—In root coarsely powdered or fluid extract.
 Camphor—In gum and spirit.
 Capsicum—In powder and fluid extract.

- Catechu—In powder or fluid extract.
 Carbolic Acid.
 Castor Oil.
 Caustic, Lunar—In sticks.
 Chalk—Prepared.
 Chamomile Flowers.
 Chloride of Lime.
 Chlorodyne.
 Cinchona—In bark and fluid extract.
 Cinnamon—Oil or essence.
 Cotton Wadding.
 Court Plaster.
 Cream of Tartar.
 Creasote.
 Copper, Sulphate of—(Blue Vitriol.)
 Cubebs—In powder.
 Dandelion—In pills and fluid extract.
 Dover's Powder.
 Epsom Salts—(Sulphate of Magnesia.)
 Flaxseed, or Linseed—Whole and ground.
 Galls—In powder.
 Gallic Acid.
 Gentian—Root and fluid extract.
 Ginger—In tincture.
 Glycerine.
 Gum Arabic—In powder.
 Ipecacuanha—Powder and syrup.
 Iodine—Tincture.
 Iron, Sulphate of—(Green Vitriol.)
 Iron, Tincture of—In glass-stoppered bottle.
 Jalap—In powder.
 Juniper Berries, or Oil.
 Lead, Acetate of, or Sugar of Lead.
 Lemon Juice.
 Magnesia—Calcined or Fluid, and Citrate of
 Mercury—Calomel, and Gray Powder, and
 Red Precipitate.
 Muriatic Acid—(Spirit of Salt)—In glass-
 stoppered bottle.
 Mustard—In close tins.
 Myrrh—Tincture.
 Nitre, Sweet Spirit of.
 Nitric Acid—In glass-stoppered bottle.
 Oil—Camphorated.
 Opium—In powder.
 Opium, Tincture—(Laudanum.)
 Opium—Compound tincture—(Paregoric.)
 Peppermint, Oil.
 Pills—Compound cathartic, assafoetida,
 compound rhubarb, aloes and iron,
 podophyllin.
 Potash—In solution (Liquor Potass.)
 Potash, Bicarbonate—In powder.
 Potash, Chlorate of.
 Potash, Nitrate of—(Saltpetre.)
 Potassium, Iodide of.
 Podophyllin—In powder.
 Quassia—In chips.
 Quinine.
 Rhubarb—In powder, tincture and syrup.
 Salicine—In powder.
 Salicylic Acid—In glass-stoppered bottle.
 Santonine—In powder.
 Sarsaparilla—In fluid extract.
 Seneka—In fluid extract.
 Senna—In leaves or fluid extract.
 Soda, Bicarbonate of—In powder.
 Spermaceti.
 Sulphur—In powder.
 Sulphuric Acid—(Elixir Vitriol)—In glass-
 stoppered bottle.
 Tartaric Acid.
 Tannin.
 Turpentine.
 Uva Ursa—In leaves and fluid extract.
 Valerian—Root and fluid extract.
 Wax.
 Zinc, Sulphate of—(White Vitriol.)

Great precaution should be taken in having all bottles and parcels carefully labelled.

In this list are not included those medicines which, though very useful, are indigenous in almost every part of the country, the medicinal parts of which may easily be procured, and decoctions and infusions prepared according to the directions given in this work—or the preparations of all the indigenous plants mentioned in this work, are procurable at the better class of drug stores—such as boneset, queen's root, life-root, poplar, gold thread, wild cherry, pleurisy root, turkey

corn, and a host of others. In addition to the above list of medicines, every fully-equipped medicine chest should be provided with a set of scales with weights, a small graduated glass measure, a funnel, a spatula, and a moderate-sized mortar and pestle. The graduated glass measure indicating teaspoon, dessert-spoon and tablespoon is the most convenient. (See DOSE, WEIGHTS AND MEASURES, MORTARS AND PESTLES, POWDERS; also the various individual articles on medicines throughout this work.)

HOUSEMAID'S KNEE. (See KNEE.)

HOUSES, *houz'-ez* [Ger. *haus*]. The first thing to be taken into consideration in the erection of a new dwelling is the choice of a site. In choosing a dwelling place a man should ask himself these questions: Is it dry? Is it airy? Has it a good aspect? Is there plenty of water? Is it good? Is the drainage good? What is the character of the soil?

Dryness.—A damp house is always unhealthy. The damp may come from the ground, and may rise in the walls to a considerable height, or it may come from a leaking roof or choked rain-pipe, or from rain leaking through thin, porous walls. If the floor be of brick, or if the boards be laid only a few inches from the soil, the house will invariably be damp. There should always be a current of air beneath the floor. Stone and brick walls should always be hollow, and should be lathed before plastering, for if these precautions be not taken, damp, unhealthy walls will be the result. There is one common practice in the country which often makes the houses damp: all the dirty water of the house is thrown on the ground, or in a "slush-hole" close to the dwelling, underneath which it passes. Many an attack of typhoid fever has been caused in this way.

Good air.—The people will never be perfectly healthy until they have learned the importance of breathing pure air. If possible, a man should choose a house in a somewhat elevated position; low-lying situations, especially if damp, being proverbially unhealthy. There should also be plenty of space around it, so that the dwellers may exist without having to breathe their neighbors' air. The windows should open both at the top and the bottom, and every opportunity should be embraced of letting in the fresh air. The following simple plan will always insure a supply of fresh air, and may be carried out during the coldest weather of winter; Lift up the window at the bottom two or three inches, and insert a piece of wood prepared for the purpose, the whole length, so as to support the window, and close the opening. The air then enters at the middle of the window between the sashes (as the sash of the lower window is raised above that of the upper), and passes upwards toward the ceiling; it mixes so gradually with the air of the room that no draught

is felt. Impurity of the air often arises from impurity of the walls, floors and furniture. The walls should be well cleaned regularly, and if there be paper on them, the owner should see that arsenical paper is not used, and that new paper is not put on until the old is removed. All green wall paper contains arsenic. Gas should never burn in a room unless there is a tube to carry off the products. The bed-rooms should not be on the ground floor unless there be ample cellarage beneath, and the ceiling should be at least eight to ten feet high. Every house should be provided with plenty of cellar room, extending under the whole surface of the floor, and the cellar should be as thoroughly ventilated as the remainder of the dwelling. The chimney should extend from the cellar floor to at least four feet above the surface of the roof, and be properly covered so as to admit air, but exclude rain. In the summer the fire-place should not be closed up, as the chimney is an excellent ventilator.

Good aspect.—Every house, and as many rooms in the house as possible, should have a warm, sunny aspect; both light and warmth have a considerable influence on health, and it is easy to shut out the sun if required. The old Italian proverb, "Where the sun does not enter, the doctor does," contains a great deal of truth.

Good water.—As the cause of many diseases is known to be carried by the water, too much caution cannot be exercised in regard to the water supply. Water should be entirely without smell; all bad-smelling waters are unwholesome. Every man who has control over the sources of water supplying his house, should watch over them most carefully and see that no drain-pipe runs near his spring or well. Too often the cess-pool and well are in close proximity. Every house in which the water is supplied by a company should be furnished with a charcoal filter. No house should be without a cistern, and care should be taken that the escape does not open into the sewer.

Drainage.—The condition of the house-drainage in many parts of the country is very unsatisfactory. In every house the exit-drain should be well-ventilated just after it leaves the building, so that at any rate the dwellers may be safe from the risk of the sewer-air penetrating into their sleeping apartments. In many houses in the towns and cities, the water is carried into the rooms, and a sink provided to carry it off again after having been used; the sink-pipe runs into the sewer, and the warm room is sure to draw sewer-air from the sink. This is the fertile source of disease and death in many dwelling-places, and should be religiously guarded against.

Character of the soil.—Dry impermeable soils are the best to build on, and next to these, dry, gravelly soils that permit the water to drain

through them. Low-lying places, near marshes or the banks of sluggish streams, should be avoided as sites for dwelling-houses.

Heating.—The most healthful methods of warming houses are either by means of steam, combined with ventilating apparatus, or by means of fire-places, which are of themselves the very best ventilators that can be introduced into our residences. Neither of these modes are available to the masses, the apparatus for the former being too costly, and so comparatively few houses being provided with the latter, their places having been usurped by stoves, which cannot be so wholesome, if but for one reason, namely, the very defective ventilation which they afford, if any at all; besides causing a dryness of the air, which is not only uncomfortable, but unhealthy. Where stoves are used, extra provision should be made both for ventilation and moisture. If the system of heating in towns and cities, by means of steam pipes—emanating from reservoirs, and distributed to every part of the city in a similar way to water pipes—should prove practicable, as we have every reason to believe it will, a great boon will be conferred upon the masses of the people in our populous towns and cities, by giving them the luxury of heating by steam at rates not exceeding the cost of warming by stoves. (See CHIMNEY, STOVES, BED-ROOM, AIR, VENTILATION.)

Lighting.—Each room should, if possible, be provided with two windows. Every one is aware how vegetables are blanched if excluded from the light; the same process takes place in the human frame. A good roseate color can be secured only by the presence of plenty of light. The healthy individual pales and dies, and the sick one cannot possibly recover where darkness takes the place of light.

If, therefore, a house be dry, with a good exposure, and capability of external ventilation; if the floors, walls, ceilings, cellars and furniture are kept clean; if the rooms are spacious, well-lighted, well-ventilated, and kept at a temperature of 65° to 70° Fahrenheit, and are perfectly free from sewer-air, or from emanations from the ground, and if the water supply be good and plentiful, the house cannot be accused of any illness which may occur in it. The illness must arise from conditions external to the house. (See AIR, VENTILATION, BED-ROOM, CHIMNEY, DRAINAGE. SANITARY SCIENCE, WATER, WALLS AND WALL PAPERS, DAMP, WHITEWASHING.)

HUMAN BODY, TEMPERATURE OF. (See HEAT.)

HUMERUS, *hu'-me-rus* [Lat.] The anatomical name of the arm-bone. This bone is, at its upper end, articulated or jointed at the shoulder, to the shoulder-blade or “scapula;” and at the elbow, by the lower end, to the two bones of the fore-arm. (See SHOULDER, SCAPULA, ELBOW, FORE-ARM, ETC.)

HUMID, OR MOIST TETTER. (See IMPETIGO.)

HUMOR, *yu'-mor*, or *hu'-mor* [Lat. *humus*, the ground; because moisture was supposed to spring from the ground], a general name for any fluid, but more especially applied to the fluids of the human body, and often to these in their morbid state. The term is used without any reference to disease in speaking of the fluids of the eye. (See EYE.)

HUMULUS LUPULUS, *hu'-mu-lus lu'-pu-lus*, or common hop, a perennial plant belonging to the Nat. order *Urticaceæ*. It is a native of both Europe and America. The hop is tonic, hypnotic, febrifuge and anthelmintic. It has a tendency to produce sleep and relieve pain when opiates are inadmissible. A pillow stuffed with them is often used to procure sleep, and hops heated in a flannel bag are a common and useful remedy for neuralgia and toothache. The infusion is a good tonic in weak or irritable conditions of the stomach. The hop contains a peculiar principle called lupulin, which has been much in use for several years. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 5 to 20 grains; of lupulin, 5 to 10 grains; of the infusion, a teacupful, three or four times a day. (See INFUSION.)

HUNGER, *hung'-gur* [Ang.-Sax.], a peculiar sensation experienced in the region of the stomach, in consequence of the want of solid food. The sensation of hunger is at first rather agreeable, but it quickly becomes unpleasant, when prolonged. The sense of keen appetite is always delightful when there is a prospect of satisfying it; but that sinking in the stomach which ensues, soon changes from uneasiness to absolute pain, which rapidly becomes acute; and if aliment still be held back, the sensation produced is as if the stomach were being torn by pincers. A state of general exhaustion, feverishness, headache, light-headedness, often passing into madness, follows. The whole being seems absorbed in one desire, before which even maternal instinct has been known to give way, and mothers have disputed with their companions for the flesh of their dead infants. The physiological causes of hunger are not well understood, and great difference of opinion exists among scientific men on the subject. According to popular belief, the sensation of hunger is caused by the emptiness of the stomach, which, in the opinion of some physiologists, allows the sides of that organ to rub against each other, and the friction causes the sensation. This, however, is wrong, for the stomach is usually empty for some time before the feeling of hunger is experienced; and, as is well known, the stomach may be empty for days together, as in illness, without any sensation of hunger. Another theory is that the gastric juice accumulates, and attacks the walls of the stomach. This, however, has been proved not to be the case.

A French philosopher made several experiments on the subject of

inanimation, according to which it appears that death from hunger occurs when the waste reaches 0.4; that is to say, supposing an animal to weigh 100 lbs., it will die when its weight is reduced by fasting to 60 lbs. Death may possibly occur before that stage, but life cannot exist after it. In the case of human beings, death usually occurs in from eight to ten days of total abstinence from food and drink; but much depends upon the peculiar constitution of the individual, his age, health, habits, etc. Some die on the fifth or sixth day, while others can survive ten, twelve, or even sixteen days. (See ANIMAL HEAT, ABSTINENCE, APPETITE, DIGESTION, FOOD, THIRST, STARVATION.)

HUNTSMAN CAP. (See SARRACENIA PURPUREA.)

HUNYADI JANOS WATER. (See MINERAL WATERS.)

HYBRID, *hi'-brid* [Gr. *hubris*, an injury, because its nature is tainted], is a term applied to the offspring of two animals or plants of different species. Neither hybrid animals nor plants propagate their species.

HYDATID, *hi'-da-tid* [Gr. *hudatis*, a vesicle, from *hudor*, water], a term applied rather vaguely to various cyst-like productions, which are sometimes found in the bodies of men and animals.

HYDRAGOGUE, *hi'-dra-gog* [Gr. *hudor*, water; *ago*, I expel], a term applied to violent cathartics, which bring away a large quantity of watery secretion from the intestines. (See CATHARTICS.)

HYDRANGEA ARBORESCENS, *hi-dran'-je-a ar-bo-res'-sens*, or hydrangea, is a perennial plant belonging to the Nat. order *Saxifragaceæ*, and is sometimes known by the name of seven barks. It grows on mountains and hills, and near streams throughout the Southern, Middle and Western States. The root is the part used.

The leaves of hydrangea are tonic, sialagogue, cathartic and diuretic.

This plant was introduced to the notice of the profession by Dr. Butler, of Burlington, N. J., as a remedy for the removal of calculus, or gravelly deposits in the bladder. It has seemed also to have the power of relieving the excruciating pain attendant on the passage of a calculus through the ureter. The power of curing stone in the bladder does not appear to be claimed for it; it is only when the deposits are small, when in that form of disease known as gravel, that it is an efficient remedy; then by removing the nucleus, which if allowed to remain in the organ, would increase in size and form stone, the disease is averted. In an overdose it produces unpleasant symptoms, such as dizziness of the head, oppression of the chest, etc. Dose: of the fluid extract, 1 to 2 teaspoonfuls; the infusion, 2 to 4 fluid ounces. (See INFUSION.)

HYDRARGYRUM. (See MERCURY.)

HYDRARGYRUM CUM CRETÆ, OR GREY POWDER. (See GREY POWDER.)

HYDRASTIS CANADENSIS, *hi-dras'-tis kan-a-den'-sis*, or golden seal, is a perennial plant belonging to the Nat. order *Ranunculaceæ*. It is known by the various names of yellow puccoon, ground raspberry, and turmeric root, and is found growing in woods and shady places throughout Canada and the United States. The root is the part used. It contains a resinoid called *Hydrastin*. Its principal medicinal quality is a powerful bitter tonic, highly useful in all cases of debility and loss of appetite. It appears to have a specific stimulating effect upon the mucous membrane beyond what would follow the use of a simple tonic. As a tonic it has been successfully used in dyspepsia, chronic affections of the mucous coats of the stomach, erysipelas, remittent and intermittent fevers, typhoid fever, torpor of the liver, and general cases requiring a tonic.

In chronic diarrhœa and dysentery, combined with geranium, it has given satisfaction; also, in combination with geranium as a valuable injection in gleet, chronic gonorrhœa, and leucorrhœa; likewise in inflammation and ulceration of the internal coating of the bladder. Dose: of fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; solid extract, 2 to 5 grains; hydrastin, $\frac{1}{2}$ to 5 grains.

HYDRATE OF CHLORAL. (See CHLORAL.)

HYDRATE OF LIME. (See CALCIUM.)

HYDROCELE, *hi'-dro-seel*, a dropsical swelling within the scrotum. It requires proper surgical treatment for its cure, but a patient may derive much comfort by wearing a bag truss, or some similar support, until he is relieved by operation.

HYDROCEPHALUS, *hi'-dro-sef'-a-lus* [Gr. *hudor*, water; *kephale*, the head], is a term applied to dropsy, or water in the head. Physicians distinguish it into two kinds, the acute and the chronic, both of which are almost exclusively confined to infancy and childhood. Acute hydrocephalus is an inflammatory disease rapid in its course, and requiring decided treatment; chronic hydrocephalus, on the other hand, may go on for many years.

Symptoms.—In acute hydrocephalus, the child is usually restless and fretful, the skin is hot and dry, the pulse quickened, the appetite impaired, and the bowels costive. The eyes are dull and heavy, the face flushed, and the child complains of pain and heaviness of the head. After a time, the symptoms become more manifest. The pain in the head becomes more intense, the restlessness is much increased, the expression of the countenance is altered, especially that of the eyes, which are often directed irregularly, with the pupils unequally dilated. The appetite is lost, and sometimes there is vomiting. The sleep is very much disturbed, and frequently the child awakens with a loud scream;

the pulse is low and irregular, and often convulsions take place. The disease frequently proves fatal in two or three days, or even less; but sometimes it is protracted over two or three weeks, depending chiefly upon the age and strength of the child and the violence of the disease.

Treatment.—The treatment of this disease must necessarily depend upon the strength and condition of the patient, the great object being to subdue the inflammatory action of the brain. Blood is to be freely abstracted by leeches. Active purgatives are also to be administered, and cold water cloths applied to the head. When the active symptoms of the disease have been overcome, the system is to be gradually restored by tonics, cautiously administered.

Chronic hydrocephalus differs from the other, not only in its progress being much slower, but from being rarely, or only slightly, attended with inflammation, and from there being always more or less of a collection of watery fluid in the brain, which is not invariably the case with the former. The chronic form is frequently hereditary, occurring in the children of weak or scrofulous parents, and it usually makes its appearance before, or speedily after, birth. The fluid sometimes amounts to many pints, giving the head a very large and unsightly appearance. It is sometimes lodged in the membranes enveloping the brain, but more frequently it is contained in the ventricles and other cavities of that organ itself. This disease is always attended with more or less of intellectual derangement. The vision is usually considerably impaired, with squinting; speech is imperfect, and the power over the voluntary muscles is partially lost. These symptoms gradually increase, convulsions and paralysis at length make their appearance, and death at last supervenes. The duration of the disease is extremely various; sometimes it may terminate fatally in a few months, at other times it may go on for many years. From the early period at which this disease usually makes its appearance, little can be done to arrest its progress. Purgatives, diuretics and alteratives are the means usually adopted. In some cases, good is done by bandaging; and, as a last resource, puncturing is not unfrequently successful. Hydrocephalus is no disease for domestic treatment, and the best medical aid should be procured as soon as possible. (See BRAIN.)

HYDROCHLORIC ACID, *hi-dro'klo'-rik as'id* [from hydrogen and chlorine], spirit of salt, marine acid, muriatic acid, or chlorhydric acid, a colorless gas of a peculiar pungent odor and an intensely acid taste, irritating the eyes and lungs considerably. It is heavier than air, having a specific gravity of 1.269. Water absorbs 480 times its volume of this gas at 40°, increasing in volume by one-third, forming a colorless fuming liquid known as hydrochloric acid in the laboratory. The

hydrochloric acid of the Pharmacopœia is a nearly colorless and strongly acid liquid, emitting white vapors, having a pungent odor, and a specific gravity of 1.16. It forms an ingredient in a number of pharmaceutical preparations. The diluted acid is formed of 8 fluid ounces of the acid and a sufficiency of distilled water to make $26\frac{1}{2}$ fluid ounces at 60° Fahr. It is frequently given in dyspepsia, particularly when arising from a morbid condition of the gastric juice, and sometimes in cases of putrid fever. Dose, from 10 to 20 drops.

HYDROCYANIC ACID, *hi'-dro-se-an'-ik* [from hydrogen and cyanogen], prussic acid, or cyanhydric acid. This important compound is composed of equal volumes of hydrogen and the compound gas cyanogen. It is prepared by submitting a cyanide to distillation with a strong acid. Diluted hydrocyanic acid, containing two per cent. by weight of the acid, is given in doses of 2 to 8 drops, as a sedative and anodyne. It is particularly useful in spasmodic coughs of every description, particularly in asthma, chronic bronchitis, and whooping cough. It has also been employed with success in palpitation, and other diseases of the heart, in affections of the stomach and neuralgia. In cases of poisoning with hydrocyanic acid, it acts so quickly and powerfully as to afford little time for the operation of antidotes. The means usually recommended are the pouring of cold water on the head and spine, keeping up respiration artificially, cautiously inhaling largely diluted chlorine, taking hot brandy and water, and the ammoniated tincture of iron.

HYDROGEN, *hi'-dro-jen* [Gr. *hudor*, water; *gennao*, I produce], in Chemistry, symbol H; equivalent 1; specific gravity 0.0692. Hydrogen is an elementary substance, first isolated as a constituent of water by Cavendish, in 1766. It is a colorless, transparent, tasteless, inodorous gas, permanent at all temperatures, and resisting all efforts to liquefy it. It is the lightest substance in nature, being 14.47 times lighter than air, and 100 cubic inches of it weighing only 2.14 grains. In combination with water, it is most extensively distributed throughout nature. It also exists in combination with carbon in most inflammable minerals. It is an important element in all organic substances, and enters into the composition of most substances in daily use, whether drawn from the mineral, vegetable, or animal kingdom. Having a very great attraction for oxygen and chlorine, when in the nascent condition, it is much employed in the laboratory for deoxidizing or dechlorinating purposes. It is prepared in a variety of ways, the most usual being by pouring dilute sulphuric acid on granulated zinc or iron clippings, when the following reaction takes place: $\text{Zn} + \text{SO}_3\text{HO} = \text{Zno} + \text{SO}_3 + \text{H}$. It may also be prepared by passing steam over red-hot iron filings, by plunging

sodium or potassium into water, or by electrolysis of water; all of which methods are more scientifically interesting than practical. Mixed with air, it may be breathed without any other effect than raising the pitch of the voice many notes higher. Mixed with oxygen, olefiant gas, or atmospheric air, it forms an explosive compound of great power. Hydrogen is used principally in the oxyhydrogen blowpipe.

The principal compounds of hydrogen are water, ammonia, hydrochloric acid, sulphuretted hydrogen, and carburetted hydrogen, which is commonly known as marsh gas. It is very inflammable, and forms the explosive gas of mines, when mixed with air. Olefiant gas and phosphuretted hydrogen are two inflammable compounds of hydrogen of less importance.

The union of hydrogen gas with sulphur constitutes the very offensive smelling gas, sulphuretted hydrogen, which is one of the products of the decomposition of organized bodies, and also forms the characteristic feature of many of the mineral waters.

HYDROPATHY, *hi-drop'-a-the* [Gr. *hudos*, water, and *pathos*, disease], is a mode of curing disease by means of the application of water. The system owes its origin to one Vincenz Priessnitz, who, in 1826 established an institution at his native place, Grafenburg, in Austrian Silesia, for the cure of diseases on this mode. The system soon spread, and now there are in this country a number of large hydropathic establishments. Without claiming for the system all that its votaries demand, there can be no doubt that it is of the greatest benefit in a great number of cases. Particularly is it of service in cases of indigestion, nervousness, an impaired constitution, a too full habit, or in such as have been living freely, without taking much exercise. The system of dietary and exercise that is kept up at these places is, perhaps, not less conducive to a cure than the baths. (See BATHS AND BATHING, ABLUTION.)

HYDROPHOBIA, *hi-dro-fo'-be-a* [Gr. *hudos*, water, and *phobos*, I fear], is a disease occasioned by the bite of a rabid animal, and so called from the great dread that those who suffer from it manifest at the sight of water. The dog, cat, fox, and wolf are the animals among whom this disease is most common—among whom it is natural; but there is, perhaps, no animal to whom it is not capable of being communicated, as it is to man. A dog who is suffering from this disease becomes solitary, morose, and sullen; runs about wildly, and bites at whatever comes in his way; but his respect for his master is at first unaltered. As the disease advances he becomes more furious, gnawing and biting at whatever comes in his way; he forgets his master, breathes quickly and heavily, his tongue hangs out, his mouth is continually open, and discharges a large quantity of froth. In this state he seldom lives more

than four-and-twenty hours. The poison exists in the saliva of the rabid animal, and may be communicated either by a bite or by licking a wounded part.

Symptoms.—After the poison has been received, the wound usually heals up in the ordinary way. At a period, however, varying from a month or six weeks to perhaps eighteen months, symptoms of the disease begin to manifest themselves. The part becomes painful, red, and swollen, and shooting pains are felt, extending from it to the central parts of the body. Very soon after this (within a few hours perhaps, but certainly within a few days) the specific constitutional symptoms make their appearance; he is hurried and irritable; speaks of pain and stiffness, perhaps, about his neck and throat; unexpectedly he finds himself unable to swallow fluids, and every attempt to do so brings on a paroxysm of choking and sobbing, of a very distressing kind to behold. The symptoms rapidly increase in severity. The nervous irritability becomes extreme, the paroxysms are greatly more violent, and are excited not only by any attempts to swallow liquids, but by the very sight or sound of them; even the waving of a polished surface, as of a mirror before the eyes, or the passage of a gust of wind across the face, being sufficient to excite it. Death occasionally takes place within twenty-four hours, but sometimes it may be protracted to the fifth or sixth day; usually, however, it terminates fatally on the second or third day.

Treatment.—Nothing can be said to be known of the nature or character of this disease, and as little is known regarding its treatment. Various means have been tried, but few, or any of them, have met with any success, and none of them have received general adoption. It is not, however, every one that is bitten by a rabid animal that has hydrophobia. John Hunter records that in one case twenty-one persons were bitten by a mad dog, and only one of them had hydrophobia; and others have come to the conclusion that, on an average, only one person in twenty-five bitten will have hydrophobia. In the treatment of this disease, the great thing is to remove the poison before it has extended itself into the system. This is best done, where possible, by excision of the wounded part, care being taken that every portion of it is removed. Where it is impossible to use the knife effectually, a powerful caustic should be applied freely over the whole surface of the wound, so as to destroy the effect of the poison. As the poison is not very active, these means are usually effective, though employed some time after the receipt of the wound; but, of course, in such circumstances, all due haste is to be adopted, and it is well, before the arrival of medical assistance, to keep carefully washing the part with tepid water. For full treatment of bites of rabid dogs, see BITES AND STINGS.

HYDROTHORAX, *hi-dro-tho'-raks*, dropsy of the chest. (See DROPSY.)

HYGIENE, *hi'-jeen* [Gr. *hugiaiino*, I am in health], is applied to that branch of medicine which relates to the preservation of health. (See HEALTH, SANITARY SCIENCE, ETC.)

HYOID BONE, *hi'-oid* [Lat. *os hyoides*], is a bone between the root of the tongue and the larynx, so called from its supposed resemblance to the Greek letter *υ*. It consists of a body, two horns, and appendages, and serves to support the tongue and afford attachment to a variety of muscles.

HYOSCYAMUS NIGER, *hi-os-si'-a-mus ni'-jur*, or henbane, a biennial plant belonging to the Nat. order *Solanaceæ*. It is a native of Britain and of Europe generally, which has been naturalized in this country. All parts of the plant are medicinal, but the leaves are most generally used. They should be gathered when the plant is in flower. The active principle of henbane is a very powerful poison called *hyoscyamin*.

Henbane is a powerful narcotic. In medicinal doses it is anodyne, hypnotic, calmative and antispasmodic; allaying pain, soothing excitability, inducing sleep and arresting spasm. It does not produce constipation like opium, but has a tendency to act as a laxative. It is used in chronic cough, irritation of the urinary organs, and inflammatory cases attended with excitability; is employed with advantage in painful spasmodic affections, hysteria, rheumatism and gout; and also, combined with colocynth, in painters' colic and mania; it is also used externally to allay the irritation of very sensitive parts, and the infusion dropped into the eye dilates the pupil like belladonna. It is employed as an anodyne, soporific, antispasmodic, and sedative, in cases where opium would disagree; it is also used in fomentations, as a topical sedative and anodyne. Neuralgic and spasmodic affections, rheumatism, gout, hysteria, and various pectoral diseases, as catarrh, whooping cough, asthma, consumption, etc., are among those in which it is most frequently prescribed. It is much used in connection with griping cathartics, the disagreeable effects of which it is thought to counteract. Dose: of the fluid extract, 10 to 20 drops; solid extract, $\frac{1}{2}$ to 1 grain; pills, $\frac{1}{4}$ grain each, 2 to 4 pills; tincture, 10 to 30 drops.

HYPER, *hi'-pur* [Gr. *hyper*, over, beyond], a Greek preposition, which is conjoined with other words in order to denote excess, or anything beyond, or over and above, the original quality of the word to which it is added, as *hyperæmia*, an excess of blood in any part, or congestion; *hypertrophy*, a morbid increase of any organ, without change in the nature of its substance, arising from an excessive nutrition.

HYPERICUM PERFORATUM, *hi-per'-e-kum per-for-a'-tum*, or Johnswort, a plant belonging to the Nat. order *Hypericaceæ*. It is a native of both Europe and America. It is astringent, sedative and diuretic, and is used in suppression of urine, diarrhœa, dysentery, worms, hysteria, jaundice and hemorrhage. Externally, it is employed to dispel hard tumors, caked breasts, and the blackness that follows bruises. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

HYPERTROPHY. (See *HYPER*.)

HYPERTROPHY OF THE HEART. (See *HEART*, *DISEASES OF THE*.)

HYPNOTICS, *hip-not'-iks*, a term applied to those medicines that procure sleep.

HYPOCHONDRIAC REGION. (See *ABDOMEN*.)

HYPOCHONDRIASIS, *hip-o-kon-dri'-a-sis*, in Medicine, is a disease characterized by extreme sensibility of the nervous system, leading the patient to believe himself to be suffering from some terrible and imaginary disease, or to be much worse than he really is.

Causes.—The causes of this disease are various, arising, as it does usually, from an impaired condition of the nervous system. Young men of studious habits are very apt to suffer from this disease. Those too, who, from want of occupation and a due amount of exercise, acquire a luxurious habit, often fall a prey to it.

Symptoms.—The ideas of such persons often partake of the most extravagant character. He may fancy that he is immensely tall, or inordinately small; that he is heavy as lead, or light as a feather; that he is composed of glass, or is a lump of butter. They are all extremely timid, and their fears are exercised upon trifles, or are altogether groundless. They dwell constantly upon their own sufferings, and are usually morose, peevish, suspicious, and misanthropic, and frequently suspect their nearest and dearest friends of designs upon their life. There is frequently also functional derangement of certain organs, especially of those connected with the nutritive processes.

Treatment.—The cure must of necessity vary somewhat, according to the nature of the disease. In general, the great thing is to withdraw the patient's mind as much as possible from himself. For this purpose, cheerful society and change of scene should be adopted. The system ought to be strengthened by tonics, and exercise in the open air. If it arises from idleness and luxury, the great cure is plenty of active exercise and a spare diet. In all cases the state of the digestive organs should be attended to, and the bowels kept in a strictly normal condition.

One of the most valuable aids in the cure of this disease, is the daily

habit of compelling the mind at certain fixed times, to bend itself to some definite continuous employment, that will necessitate some degree of mental exercise, and that will maintain its interest from day to-day. (See MELANCHOLY, MONOMANIA, INSANITY, HABIT, DYSPEPSIA.)

HYPOGASTRIC. (See ABDOMEN.)

HYPOPHOSPHITES, *hi-po-fos'-fites*, a series of salts formed by the union of hypophosphorous acid with a base. The principal members of the series are, lime, soda, potash, iron, manganese, and ammonia. Phosphorus constitutes an important element in the human economy; it is found in the brain, nerves, blood, tissues, etc., and when there exists a deficiency, morbid symptoms are induced, which can be got rid of only by re-supplying the system. The hypophosphites accomplish this in the most direct manner. They are supposed to act in two ways; on the one hand they reinforce the principle constituting the nervous power; on the other, they are essentially blood-generating in their nature. They possess in a high degree all the medicinal effects attributed to phosphorus, without any of its dangers. The hypophosphites are indicated in all those maladies marked by a want of nervous tone, such as consumption, scrofula, epilepsy, rickets, and chronic convulsive disorders. They may be given in doses of from 10 to 20 grains, three times a day, but they are generally administered in combination in the form of syrup.

The following are the principal combinations to be found for sale, with the doses of each: Syrup of the hypophosphites of lime, soda, potassa, and iron. This preparation is peculiarly applicable to weakly, ill-fed children, and cases of debility generally. Dose: 1 teaspoonful three times a day. Syrup of the hypophosphite of iron, an excellent preparation wherever a blood restorer is indicated. Dose: 1 to 4 teaspoonfuls three times a day. Syrup of the hypophosphites of iron and manganese, a form peculiarly suited for administration in cases of pulmonary consumption. Dose: 1 teaspoonful three times a day. Syrup of the hypophosphites of iron and quinine, particularly serviceable in the debility consequent upon typhoid fever and other diseases. In some stages of intermittent and remittent fevers it can also be used with advantage. Dose: 1 to 2 teaspoonfuls three times a day. Syrup of the hypophosphites of lime and soda. Dose: 1 to 3 teaspoonfuls three times a day. Recently the hypophosphites have been combined with cod-liver oil.

HYSSOP. (See HYSSOPUS OFFICINALIS.)

HYSSOPUS OFFICINALIS, *hiz'-zo-pus of'-fis-in-a'-lis*, or common hyssop, a perennial herb belonging to the Nat. order *Labiaceæ*. It is raised in gardens, both in this country and in Europe. It is stimulant, aromatic, carminative and tonic. It is used with sage and alum as a

gargle for sore throats. The leaves applied to bruises relieve the pain and disperse the dark color. Dose: of the fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; the infusion, 1 to 4 fluid ounces. (See INFUSION.)

HYSTERIA, *his-te'-re-a* [Gr. *hystera*, the womb], is a nervous affection to which females are particularly subject. This complaint appears in such a variety of forms, and simulates such a variety of diseases, that it is scarcely possible to give a just character or definition of it. There are few maladies that are not imitated by it, and whatever part it attacks, it assumes the appearance of the disease to which that part is liable.

Causes.—It is generally connected with uterine irregularities, and occurs most frequently with persons between the ages of fifteen and forty-five and fifty, and is most common with single women of weakly constitution, and who lead sedentary lives.

Symptoms.—In general hysteria, the attack is usually preceded by dejection of spirits, anxiety of mind, difficulty of breathing; a ball is felt advancing upwards from the stomach into the throat, and threatening to stop the passage of the air; then the trunk and limbs of the body become violently convulsed, the patient sobs and cries and occasionally bursts out into fits of laughter. After a time, these symptoms gradually cease, a quantity of wind is evacuated upwards, with frequent sighing and sobbing, and the woman recovers the exercise of sense and motion, frequently without any recollection of what has taken place during the fit, feeling however, a severe pain in the head, and a soreness all over the body. A fit of hysteria may last from a few minutes to several hours, or even days. It is to be distinguished from an epileptic fit by the absence of foaming at the mouth, by the sobbing and crying, by the milder expression of countenance, and by its being gradual and preceded by the sensation of a ball. Hysteria assumes various other forms; as palpitations of the heart and difficult respiration; pains in different parts, as the head, left breast, etc.; different forms of paralytic affections, etc. The hysteric fit, however alarming and dreadful it may appear, is rarely accompanied with danger, and never terminates fatally unless it passes into epilepsy, or the patient be in a very reduced state.

Treatment.—During the paroxysm the patient must be protected from injury; she should be removed to a cool room, her dress loosened, and she may be roused by pouring cold water over her face and chest. Ammonia may be held to her nostrils, and the following antispasmodic draught prescribed:

Take of Ammoniated tincture of valerian.Twenty drops.

Camphor water.One and a half ounce.—*Miz.*

Or a foetid injection may be given thus:

Take of Tincture of assafœtida.Six drams.

Mucilage of starch.Six ounces.—*Miz*

During the intervals between the fits the general health must be improved, the functions of the uterine system attended to, and moral and mental discipline brought to exert its influence upon the excitable temperament of the patient; if she be weak, pale, and deficient in blood, iron should be given, and the bowels kept regular in their action by aperient pills.

Take of Ammonio-citrate of iron.....One dram.
Compound spirits of ammonia.....One dram.
Salicine.....Half a dram.
Pure water.....Six ounces.—*Mix.*

Take two tablespoonfuls three times a day.

Take of Compound extract of colocynth....Two scruples.
Calomel.....Twenty-four grains.—*Mix.*

Divide into twelve pills, two of which must be taken occasionally at bedtime.

Hysterical patients should be ordered to use the cold shower or plunge bath every morning. Of all nervous affections this spreads the most rapidly by moral contagion; if one patient in a ward be hysterical, oftentimes several of her companions become affected with the same disease. Sympathy, too, has a great influence over this disease: when the patients excite the pity of their friends and those who may chance to be around them, they can command a fit of hysteria at their desire.

Hysteria, though dependent on physical derangements, is a disease to a considerable extent under the control of the will; and this fact should be urged upon the patient, when sufficiently sensible. Hot rooms, late hours, and novel reading must be avoided by all girls predisposed to this affection. Married life often proves a cure. To compare the symptoms of the hysterical paroxysm with those of the epileptic fit, read the article on the causes, symptoms and treatment of epilepsy. (See EPILEPSY, IMITATION.)

HYSTERITIS, *his-te-ri'-tis*, inflammation of the womb. (See WOMB.)

I.

ICE, *ise* [Lat. *glacies*], the familiar and also the technical term for water in the solid state. Water, on being cooled, contracts until the temperature has fallen to about 39° Fahr., when it begins to expand. At the freezing point, 32°, under ordinary circumstances, ice is formed which, in consequence of the continued expansion, has only 0.93 of the specific gravity of water at 39°. The ice, therefore, floats upon the surface.

The uses of ice are various in all parts of the world, either for cooling wines and other beverages, or for confectionery purposes. Ice is often an agent of the greatest value in the treatment of disease, one, indeed, for which there is at times no substitute. As an external application, when cold is desirable for the purpose of reducing the heat of any particular part, such as the head, ice manifestly offers the most efficient means; it may either be permitted to dissolve in the water in which the cloths are dipped, or, better, it may be pounded and placed on the part in bladders, or in elastic water-cushions.

Ice has been applied to the spine, of late, with varying success, in the treatment of epilepsy and other nervous diseases, by means of ice-bags. They are made of elastic material, and extend from the neck to the bottom of the spine, being so nicely constructed that there is no fear of wetting the patient's clothes, and so causing discomfort.

As an internal remedy, in inflammatory affections of the stomach, in obstinate vomitings, and in hysteria, small fragments of ice swallowed frequently or allowed to dissolve in the mouth, are often not only of the most essential service, but the remedy is one most agreeable to the feelings of the patient. In inflammatory affections of the throat and upper part of the windpipe, either the result of cold, or of accident, such as that which so often occurs to children in consequence of their swallowing boiling water from the spout of a kettle, ice given in small, frequently-repeated morsels, will be found at once one of the safest, best and most agreeable remedies. It has been found useful in loss of voice. Ice is of service in checking vomiting or hemorrhage. It is also given in typhus and other fevers. (See COLD, ICED DRINKS.)

ICED DRINKS, OR ICES, *iste*, as articles of luxury, if taken moderately, cautiously and slowly, and when the stomach is not full of food, are not injurious to healthy persons. It was found, however, in Dr. Beaumont's experiments, that cold fluids and the like produced a reduction in the temperature of the stomach to the amount of 20° or 30° Fahr., and that the organ did not recover its proper heat for some time. As, however, the natural temperature of the stomach—about 100° Fahr.—is necessary for healthy digestion, it is evident that the custom of eating ice after dinner, or after any full meal, must materially interfere with the disposal of that meal. (See ICE.)

ICELAND MOSS. (See CETRARIA, COOKERY FOR THE SICK.)

ICE-PLANT. (See MONOTROPA UNIFLORA.)

ICHOR, *i'-kor* [Gr.], a term used to denote a thin, aqueous and acrid discharge from wounds, ulcers, etc.

ICHTHYOSIS, *ik-the-o'-sis* [Gr. *ichthus*, a fish], a disease of the skin which takes its name from the surface of the cuticle suggesting the idea

of the scaly skin of a serpent or fish. It appears principally on the external parts of the limbs and round the joints, as of the knee or elbow. The scales rest on an uninflamed surface, and there is no heat, pain or itching. It is not common, and the remedies known are only palliative, as warm bathing and the use of mucilaginous and glycerine lotions to mollify the roughness.

ICTERUS. (See JAUNDICE.)

ICTERUS INFANTUM, *ik'-te-rus in-fan'-tum*, the jaundice of infants. (See YELLOW GUM.)

IDIOCY AND IMBECILITY, *id'-e-o-se* [Gr. *idiotes*, originally an ignorant person; one who practiced no art or profession; a person deprived of sense; an imbecile], may be regarded as degrees of deficient mental manifestation, consequent upon a similar disordered or defective state of the brain. Some have defined the difference that idiocy is congenital, and imbecility acquired; but, generally, imbecility is regarded as a minor degree of idiocy.

An idiot has been defined as one "who knows nothing, wishes nothing, and can do nothing," whose instincts scarcely prompt him to seek food under the pressure of hunger; from this lowest condition of all, up to the weak mind or judgment, every shade of idiocy, weak intellect, imbecility or silliness, is met with, and all perhaps are, more or less, capable of improvement, by means of attention to the physical health, and by education of the faculties.

Till within the last few years, the general idea has been, that idiocy was incurable; the unfortunate beings, whether in the families of the rich or of the poor, were allowed to grow up, their physical wants attended to in accordance with the circumstances in which they happened to be placed, but their mental condition left without attempt at cultivation. Fortunately the error has been exposed, and institutions are now in successful operation, for the end of elevating these unfortunate beings from their debased position. The fact, that idiocy has been regarded too much as a thing of the mind alone, independent of physical influences, has tended in some degree to interfere with the efforts for its amelioration; attention to the physical health is a matter of paramount necessity. In the case of the cretins of Switzerland, the fact is peculiarly manifest. Enough has been said to give hope to those who number amid their families an idiot, that something may be done to ameliorate the calamity, and to induce them, as soon as the condition of an idiot child becomes manifest, to place it, or, if possible, to get it placed under judicious management at an early age. In a paper lately read by Dr. Forbes Winslow, before the Medical Society of London, England, he remarks with regard to the causes of idiocy. The great mass of idiots

were said to spring from an unhealthy stock, and have either been the children of idiotic parents, or of those of vitiated organizations, of scrofulous diathesis, or of intemperate habits. Dr. Winslow referred to the effects of intermarriages of near relatives, and to the influence of the mind of the mother, as well as that of the father, upon the condition of their offspring. (See BRAIN, INSANITY.)

IDIOPATHIC, *id-e-o-path'-ik* [Gr. *idios*, one's own; *pathos*, an affection], a term applied to a disease which is not dependent on any other complaint, and therefore opposed to those diseases called symptomatic.

IDIOSYNCRASY, *id-e-o-sin'-kra-se* [Gr. *idios*, proper; *sun*, with; *krasis*, temperament], means a peculiar temperament of mind or body; a state of constitution peculiarly susceptible to be affected by certain agents, which in general produce no effect upon others. In this way, some persons are violently affected by honey, coffee, butter, etc. What are commonly called antipathies belong to this class.

IDIOT. (See IDIOCY.)

IGNATII. (See STRYCHNOS IGNATHI.)

ILEUM, *il'-e-um* [Gr. *eileo*, I turn about, from its numerous convolutions], in Anatomy, is the name given to the last portion of the small intestines, which terminates at the valve of the cæcum. (See INTESTINES.)

ILEUS OR ILIAC PASSION, *il'-e-us*, a violent colic. (See COLIC.)

ILIUM, *il'-e-um*, the side bone of the pelvis. It is called also *os innominatum*, or nameless bone.

ILLUSIONS. (See HALLUCINATION.)

IMBECILITY. (See IDIOCY, INSANITY.)

IMITATION, *im-e-ta'-shun* [Lat. *imitatio*]. The tendency to imitate, by which all, perhaps, but especially children, are more or less influenced, is, of course, an important consideration in the education of the latter, particularly with respect to the imitation of involuntary movements or peculiarities, such as stammering, squinting, etc., which young persons are very apt to acquire, if much associated with those who are subjects of them. The power of the tendency to imitate in causing the diffusion of disease of the nervous system, such as hysteria, epilepsy, etc., is well known. That in many cases the power of the will may prevent the manifestation or development of disease from imitation, has often been proved. The anecdote related of Boerhaave is known to most. This celebrated physician was consulted respecting the girls of a school, who, daily, one after the other, became the subjects of hysteria, simply from imitation: Boerhaave had it made known that his mode of treatment must be to apply actual cautery, that is a red-hot iron, to the spine; not another case of hysteria occurred. (See HYSTERIA.)

IMPATIENS PALLIDA, *im-pa'-she-enz pal-li'-da*, jewel weed, or balsam weed, *impatiens fulva* or speckled jewel, and *impatiens balsamina*, are all plants belonging to the Nat. order *Balsaminaceæ*. They grow in moist, shady places throughout the United States, and some parts of Canada. The whole plant is used in medicine. It imparts its virtues to water. The decoction is used in jaundice and dropsy. The juice is said to remove warts, and to cure ringworm and salt-rheum. Dose of decoction, 1 to 2 fluid ounces, three or four times a day. (See DECOCTION.)

IMPERFORATE ANUS, *im-per'-fo-rat* [Lat. *in*, priv., and *perforo*, *perforatus*, to bore through]. Infants are sometimes born with the lower extremity of the bowels completely closed. An operation has been successful, and the child has lived. Of course it must be shown to a surgeon.

IMPERFORATE VAGINA, *im-per'-fo-rat va-ji'-na*. A complete closure of the vagina is a defect with which female infants are sometimes born. It can only be remedied by a skilful surgical operation.

IMPETIGO, *im-pe-ti'-go* [Lat., from *impetire*, to infest], in Medicine is an eruption of yellow itching pustules, appearing in clusters, and terminating in a yellow, thin, scaly crust. It is the pustular form of eczema, and is known also as humid or moist tetter, and discharges a thin acrid ichor. It occurs on all parts of the body, but most commonly on the extremities. Frequently it occurs on the face or head, and sometimes in children so thickly as to appear like a mask; it is then known as *crusta lactea*, or milk crust. It is almost confined to the lower orders, and chiefly to children that are ill-fed and scrofulous. A variety of it is produced by the action of certain irritants upon the skin, as on the hands of those who work among sugar, known as the grocer's itch; also on the hands of bricklayers, known as the bricklayer's itch. The eruption is not contagious. The treatment consists in attention to the general health, a mild and generous diet, without stimulants, cod-liver oil, and tonics, especially quinine, mild aperients, or, when there is much inflammatory action, purgatives, and a frequent use of the warm bath. The best local applications are lotions of extract of poppies, and zinc ointment. (See ECZEMA.)

IMPOTENCE, *im'-po-tense* [Lat. *impotens*, unable], incapability of sexual intercourse. This may be the result of some congenital defect, or of disease of the organs; but it most commonly arises from some functional or moral cause. The class of criminal indulgences involved in a consideration of this subject are such as we can but hint at here; to unveil their secrets would be to open one of the saddest and most degrading pages of the book of humanity. In all cases of impotence we would

recommend an immediate recourse to a medical man, but by no means to place any confidence in advertising quacks, who fatten on the credulity of their fellow-men. (See ONANISM, NOCTURNAL DISCHARGES, SEMEN, STERILITY, DAMIANA, BAROSMA, ELECTRICITY, STRYCHNOS NUX VOMICA.)

IMPURE AIR. (See AIR.)

INCISION, *in-sizh'-un* [Lat. *incido*, to cut into], a clean cut made into the soft parts with a sharp instrument.

INCISORS, *in-si'-zorz* [Lat. *incisores*, from *incido*, I cut], the name given to the four front teeth in each jaw, from their use in cutting the food. (See TEETH.)

INCOMPATIBLES, *in-kom-pat'-e-blz*, salts and other substances that cannot exist together in solution without mutual decomposition, or other chemical action, taking place, on each other.

INCONTINENCE OF URINE. (See BED-WETTING; BLADDER, DISEASES OF THE.)

INCUBUS OR NIGHTMARE. (See SLEEP, DREAMING.)

INDIAN BERRY. (See COCCULUS INDICUS.)

INDIAN CORN, OR MAIZE. (See CEREALS, CORN MEAL.)

INDIAN HEMP, *ind'-yan* or *in'-de-an*. Two entirely different drugs are known by this name. In England *cannabis indica* is known by that designation, while in America it is applied to the *Apocynum cannabinum*, the Cannabis being here known as foreign Indian hemp. (See CANNABIS, APOCYNACEÆ.)

INDIAN PHYSIC. (See GILLENIA TRIFOLIATA.)

INDIAN PINK ROOT. (See SPIGELIA MARILANDICA.)

INDIAN SHOE. (See CYPRIPEDIUM PUBESCENS.)

INDIAN TURNIP. (See ARISÆMA.)

INDIA-RUBBER. (See CAOUTCHOUC.)

INDIA-RUBBER BEDS. (See BEDS.)

INDIGENOUS, *in-di-j'-e-nus* [Lat. *indigene*, a native], a term applied to diseases, animals or plants peculiar to a country.

INDIGESTION. (See DYSPEPSIA.)

INDIGO. (See INDIGOFERA.)

INDIGOFERA, *in-di-gof'-e-ra* [*indigo* and Lat. *fero*, I bear.] a genus of the Nat. order *Leguminosæ*. The species *I. tinctoria*, *cærulea*, and probably some others, yield commercial indigo, one of the most important of dyeing materials. Indigo is very poisonous; but in proper doses it has been employed in epilepsy and erysipelas, though its value in such diseases is by no means well established.

INDIGO-WEED, OR WILD INDIGO. (See BAPTISIA TINCTORIA.)

INEBRIATE ASYLUMS. (See DIPSOMANIA.)

INFANCY, INFANT. (See CHILD, CHILDREN; AGE.)

INFANTICIDE, OR CHILD MURDER, *in-fan'-te-side* [Lat. *infanticidium*; *infans*, *infantis*, an infant, and *cædo*, to kill], has been practised from very early times. One of the most difficult questions of medical jurisprudence is to ascertain the murder of a child newly born. It has first to be determined whether the child was born dead or alive, and next, whether its death was occasioned by violence, or was the result of natural causes. If it be proved that the child was born alive, and subsequently destroyed, either by violence or wilful neglect, the offence is murder, and punishable accordingly.

INFANTILE CONVULSIONS, OR FITS. (See CONVULSIONS.)

INFANTS, CATARRHAL AFFECTIONS OF. (See SNUFFLES.)

INFANTS' FOOD. (See COOKERY FOR THE SICK; CHILD, CHILDREN; FOOD, MILK.)

INFECTION, *in-fek'-shun* [Lat.], is the propagation of disease by means of deleterious or offensive effluvia contained in the atmosphere. The offensive matter may either proceed from decomposition of animal or vegetable substances, or may emanate from the bodies of persons affected by particular diseases. The presence of some of these agents may be recognized by the smell, of others only by their mischievous effects. The most important means of disinfection is ventilation. Various chemical agents are also employed for this purpose; as chlorine, chloride of zinc, perchloride of iron, sulphurous acid, carbolic acid, etc. (See CONTAGION, DISINFECTANTS.)

INFIRMARY, *in-fir'-ma-re* [Lat. *infirmus*, infirm], is an hospital for the reception and medical treatment of the sick poor. Fortunately, in almost all of the considerable towns of this country there are now establishments of this description, supported either by public subscriptions or by private endowments. (See HOSPITALS.)

INFIRM, CARE OF. (See AGE, OLD; CLIMACTERIC DISEASE, BED-ROOM, SICK-ROOM, COOKERY FOR THE SICK, ETC.)

INFLAMMATION, *in-flam-ma'-shun* [Lat. *inflammo*, to burn], is an action set up in the living body, which is characterized by redness and swelling of the portion affected by heat and pain. When these phenomena occur on a visible part, they are recognizable by all, but when they—that is inflammation—occur internally, their presence must be judged of by concomitant symptoms. Few diseases are unaccompanied by inflammation in a greater or less degree in some part of their course, and many seem to owe their characters and influence chiefly to its presence. Nevertheless, inflammation is not solely a process of disease tending to disease, it must accompany the reparative action of the wound or fracture; in other words, the means of reparation are the consequences of inflammation.

When inflammation of a part occurs, the chief effect is, determination of the blood to it, the stream being quickened in some parts, and in others impeded, whence arise the characteristic redness and swelling, heat and pain, the latter, especially, being the result of pressure on the nerves by the distended tissues. After the process has continued for some time, it may subside, the parts resuming the same appearance and action they possessed before it arose. This termination of inflammation is named "resolution:" it is of course the most desirable of all, and to bring it about, the efforts of the medical man are directed. In the event of inflammation not terminating by "resolution," it may give rise to effusion of serum, that is, of the watery portion of the blood; this effect is familiar in the case of scald or blister; internally, it happens in pleurisy, in water on the brain, etc. (See PLEURISY.)

This effect of inflammation is undoubtedly, in many instances, productive of bad consequences. A third and most important termination of inflammation is the effusion of what is called "lymph," that is of an adhesive—at first liquid, afterwards solid—matter, which becomes a permanent medium of connection between two parts. (See ADHESION.) As, however, this exudation of adhesive matter takes place as a necessary consequence of inflammation, in many cases irrespective of circumstances, it must happen that it is sometimes as much a source of injury as it is at others of benefit; thus, in the case of inflammation within the abdomen, it may glue the bowels together; in the chest, it may fix the lungs to the side, or the heart to its containing bag. Nevertheless, even internally, it is often beneficial; it may seal parts together in such a way as to prevent the escape of matters, as, for instance, from the bowels into the abdomen, which must otherwise have proved fatal.

But inflammation may terminate in none of the ways above-mentioned; it may go on to the formation of pus or matter, as in the case of abscess. (See ABSCESS.) Or ulceration may take place—(see ULCERS)—or, lastly, the vitality of the inflamed part being completely destroyed, mortification occurs, and the tissues dissolve or break down into one putrefying mass. These various effects of inflammation are in some degree dependent upon the violence of the action in the first instance, but they are modified by the nature of the affected tissue. What has now been said, however, will demonstrate how closely this important process is connected with the whole science and practice of medicine, and how greatly all treatment must have reference to it; and, especially, to induce its termination in "resolution," which leaves the affected part uninjured in structure and function.

The means used to procure resolution of inflammation are bleeding, either general or from the arm, or local by means of leeches, cupping,

etc., which relieve the overloaded and obstructed vessels; further, fomentations and poultices, that is, heat and moisture, which relax and also relieve from the accumulation of blood by producing perspiration; also medicines, such as diuretics, diaphoretics, purgatives, etc. In some cases, when inflammation is seated on the surface, it is treated successfully by the direct application of astringents to the parts. Thus, inflammation of the covering membrane of the eye is cured by an astringent wash, along with the more directly medical treatment; the diet in most cases of active inflammation requires great reduction.

In addition to the local symptoms of inflammation, there are those of the constitution, which always accompany the process, except in its most trivial forms. These are fever, inflammatory, hectic, or typhoid, according to the nature and extent of the local affection, the part involved, or the constitution of the patient. The first occurs generally in the active stage of inflammation; the second, should matter be formed; the third, if mortification or sloughing takes place. When inflammation in some of its forms is going on within the body, the blood acquires the peculiar property of becoming buffed, after it has been drawn from a vein, that is, instead of the clot being formed by coagulation, presenting a red surface, it is covered on the top by a tough yellow coat of greater or less thickness.

Although redness, swelling, heat and pain, when combined, certainly indicate inflammation, they do not do this separately; the redness of blushing is no inflammation, and pain may result from spasm, swelling may be caused by simple effusion; heat by exercise. The above characteristic symptoms, moreover, are greatly modified by the site and nature of the inflamed part; the severity of the pain, especially, being by no means commensurate with the importance of the affected organ. Some parts, such as bone, which in their healthy state possess but slight sensation, become when inflamed most acutely sensitive. Further, in some respects, pain in inflammation is a deceitful guide; sometimes it is altogether absent when its presence might have been fully anticipated; and again, if felt, it is not perhaps at the affected part, but at some distance from it. As a general rule, inflammatory pain is increased by pressure, and is in this way distinguished from the pain of spasm. In some forms of inflammation, such as those of gout, rheumatism, etc., what is called metastasis occurs, that is, the action seems to be transferred from one portion of the body to another. This tendency of inflammation may, of course, be exerted either for good or evil. Its good the physician tries to imitate, when by blisters and other means, he endeavors to produce inflammation artificially upon the skin, with the view of drawing it off from some more directly vital and less accessible organ.

The causes of inflammation are very numerous; whatever irritates locally, as familiarly exemplified by dust in the eye, will cause it; but it may also originate from causes affecting the constitution, such as cold, or it may arise in the course of constitutional diseases, such as fever.

Such are the principal general points connected with the subject of inflammation, with which it is expedient unprofessional readers should be acquainted; a clear understanding of them will tend greatly to assist the formation of rational and common sense ideas respecting the nature and progress of disease, and will throw light upon some, at least, of the whys and wherefores of its rational treatment.

The inflammations which affect the body may be classed as external and internal.

The external inflammatory affections, properly so called, are the various skin diseases, particularly erysipelas, which is, essentially, inflammation of the skin; inflammation of the eye, ear, throat, etc.

The internal inflammatory affections are those of the brain, of the chest and lungs, including laryngitis and croup, which affect the wind-pipe; and bronchitis, which is situated in the air-tubes; also pneumonia and pleurisy, and carditis, or inflammation of the heart.

Of the abdomen, the inflammations are those of the stomach and bowels generally, and of the other viscera, such as the liver and kidneys and womb. In addition to the above, there are inflammations of the blood-vessels, especially of the veins, inflammation affecting the bones, joints, etc. All these are entered into sufficiently under their separate articles. (See each individual article referred to in the first nineteen cross references succeeding this article. See also, COLD.)

INFLAMMATION OF THE AIR-PASSAGES. (See BRONCHITIS.)

INFLAMMATION OF THE BLADDER. (See BLADDER, DISEASES OF THE.)

INFLAMMATION OF THE BOWELS. (See ENTERITIS, PERITONITIS.)

INFLAMMATION OF THE BRAIN. (See BRAIN, DISEASES OF THE.)

INFLAMMATION OF THE BREASTS. (See BREAST.)

INFLAMMATION OF THE EAR. (See EAR, DISEASES OF THE.)

INFLAMMATION OF THE EYES. (See OPHTHALMIA; EYE, DISEASES OF THE.)

INFLAMMATION OF THE HEART, OR CARDITIS. (See HEART, DISEASES OF THE.)

INFLAMMATION OF THE KIDNEYS. (See NEPHRITIS.)

INFLAMMATION OF THE LARYNX. (See LARYNGITIS.)

INFLAMMATION OF THE LIVER. (See HEPATITIS.)

INFLAMMATION OF THE LUNGS. (See PNEUMONIA, BRONCHITIS, PLEURISY.)

INFLAMMATION OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

INFLAMMATION OF THE STOMACH. (See GASTRITIS.)

INFLAMMATION OF THE TONGUE. (See TONGUE.)

INFLAMMATION OF THE WINDPIPE. (See CROUP.)

INFLAMMATION OF THE WOMB. (See WOMB.)

INFLAMMATORY FEVER, *in-flam'-ma-to-re*, the high state of febrile excitement accompanying an attack of acute inflammation of any organ. (See INFLAMMATION, FEVER.)

INFLAMMATORY RHEUMATISM, OR ACUTE RHEUMATISM. (See RHEUMATISM.)

INFLUENZA, *in-flu'-en-za* [Italian, signifying influence]. This disease is the best specimen of an epidemic disease, and is often called epidemic catarrh. It is a peculiar feverish attack, accompanied with catarrhal affection of the air-tubes of the lungs, and great prostration of strength. It is not uncommon to call various forms of cold and catarrh, influenza; but the true influenza is a very distinct disease, and seldom occurs but as an epidemic, attacking large numbers at once.

Symptoms.—The symptoms of influenza are those of general fever; coming on suddenly, there is shivering, loss of appetite, perhaps vomiting, heat and thirst, with cough, frontal headache, and generally great depression and languor. The feverish symptoms may last from one day to ten, but their general duration is from three to five, or seven days, the cough usually remaining a variable time, after the acute symptoms are gone, according to exposure and circumstances, such as a predisposition to cough, etc.

Treatment.—To the strong and healthy, influenza is but a trifling disease; it certainly prostrates even them for a few days and leaves them weak, but it is in almost all cases perfectly devoid of danger—with ordinary care—and requires little or no medicine. A few days in bed, according to the severity of the case, with low diet, a gentle aperient, and diluents, the feet in hot water, being all that is required. If the catarrhal symptoms are severe, treatment similar to what is recommended in the articles CATARRH OR COMMON COLD, and CATARRH, CHRONIC, may be had recourse to.

To the weakly and the aged, influenza is, on the other hand, a comparatively fatal disease, and from the almost universal nature of its attack, carries off more perhaps, of these classes, than many more apparently severe and more dreaded disorders. The attack of influenza

in the description of persons above mentioned, should be the signal for medical attendance. It is apt, especially when neglected, to run on to bronchitis, or to inflammation of the lungs. Lowering means especially, must not be resorted to; confinement to bed, and the use of diaphoretic remedies, as recommended in the article CATARRH OR COMMON COLD, will be required; broth, strong or weak, must be allowed, according to circumstances; if the strength is deficient, wine may be requisite, and stimulant expectorant medicines, especially in the aged, if the expectoration is abundant, viscid, and difficult to be got up. In such cases, the following will be found useful: Take of carbonate of ammonia, 30 to 40 grains; tincture of squill, 1 dram; wine or syrup of ipecacuanha, 40 drops; water or camphor julep, sufficient to make an eight-ounce mixture, of which 2 tablespoonfuls may be given every three or four hours. If the cough is very irritating and troublesome, 2 teaspoonfuls of paregoric may be added to the above, but the opium rather tends to check the free expectoration, which is so desirable. Demulcent drinks, such as barley-water, should not be neglected, and a mustard plaster, or blister, to the chest will do good. In severe forms of the disease, with difficult breathing, if the strength is much reduced and the appetite bad, 2 or 3 fluid ounces of decoction of cinchona bark may be given during the day. Persons who generally suffer from delicacy of chest should beware of allowing the effects of influenza to hang about them; the debility and cough are very apt, if predisposition exists, to lay the foundation of consumption. The strong and healthy may trust to the domestic management of influenza, the weak and aged ought to have proper medical advice, if it is within reach. (See DEMULCENTS, COLD, CINCHONA, DIAPHORETICS.)

INFUSION, *in-fu'-zhun* [Lat. *infusio*], is the submission of substances to the action of water, hot or cold, for the purpose of extracting from them certain portions soluble in the fluid. The most familiar instance of an infusion is common tea. The object of an infusion is to extract volatile and other substances, which would either be dissipated or injured by exposure to higher heat, such as decoction or boiling; indeed, some infusions are better made without heat at all.

The commonest method of forming a hot infusion is, to pour the water boiling upon the substance, cover, and allow the whole to stand near the fire for some time before it is permitted to become cold. If the substance to be infused is thick or tenacious, it ought, of course, either to be cut up, or well bruised before being submitted to the action of water. As a general rule, and unless stated differently, the infusions mentioned in this work, contain the active properties of 1 ounce of the drug, extracted by a pint of boiling water. (See DRUG, DECOCTION.) The chief inconvenience connected with infusions, is the great tendency

to spoil; some, such as calumba and dandelion, becoming unfit for use in twenty-four hours in summer. It is said that if the infusion be poured boiling hot into a bottle, filled up to the top, and the bottle immediately well corked, it will keep good a long time.

INFUSION OF MALT. (See COOKERY FOR THE SICK.)

INGROWING NAILS. (See NAILS, INGROWING OF THE.)

INGUINAL, *ing'-gwe-nal* [Lat. *inguinis*, the groin], relating to the part between the abdomen and the thigh. The groin is frequently called the inguinal region.

INGUINAL HERNIA. (See RUPTURE, INGUINAL.)

INHALATION AND INHALERS, *in-ha-la'-shun* [Lat. *inhalatio*], is the "inspiration," or drawing in, of vapor—sometimes of powder—into the lungs, as a form of medical treatment for the cure of disease.

The steam from water may often be used as a safe domestic inhalation, in cases which require the local application of heat and moisture; indeed, in sore throat steaming is very commonly had recourse to. It may also be employed with advantage in cases where the breathing is difficult, with tenacious expectoration, especially in old people. In chest affections, such as consumption, with spasmodic cough, the vapor of boiling water, into which has been put a few drops of sulphuric or chloric ether, or 10 or 12 drops of laudanum, will frequently afford much temporary relief. Medicated inhalations, such as those from chlorine, if used at all, must be so under direct medical superintendence. It is probable that the slow, imperceptible, but continual breathing of an atmosphere impregnated with such medicinal agents as chlorine, iodine, etc., is more likely to be of service than their temporary use in more powerful doses.

Various methods of inhaling steam are employed: simply holding the mouth over a pitcher of hot water will answer, but if the throat be the part affected, the vapor is most directly conducted to it by means of a tube of some kind. A funnel inverted over the vessel from which the steam issues, will do very well. Where vapor is wished to be inhaled by persons confined to bed, or very weak, a good method is to place a quantity of hot bran in a suitable vessel, pour some boiling water upon it, and place it under a light cloth, which also covers the face of the patient. If desired, various forms of inhalers can be procured of the druggists. (See ATOMIZER.)

INJECTION, *in-jek'-shun* [Lat. *injecio*, I cast in], is a medicated liquor thrown into some cavity of the body by means of a syringe or other apparatus. Those injections which are thrown into the rectum are called enemata, or clysters. For full information on this subject, see CLYSTER.

INJURIES AND DISEASES OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

INLAND AIR. (See AIR.)—

INOCULATION, *in-ok-u-la'-shun* [Lat. *inoculatio*], is the introduction of a poison into the system by means of a wound. Any poison which will thus affect the part in which it is placed, of the system generally, may be said to be introduced by inoculation. The term is most generally used with reference to the poison of small-pox. (See SMALL-POX, POISONS.)

INSANE ASYLUMS, *in-sane' a-si'-lums*. Insanity is a disease, which, when once developed, ought never to be kept under domestic management, or rather mismanagement; the only reasonable hope rests with speedy removal to proper care, and to a state of external circumstances specially adapted to promote recovery. Asylums for the insane are not what they were, and the most attached and affectionate relative need not fear to place the afflicted under the protection of a well-managed establishment.

Prompt treatment is of most importance, and obstacles which make it difficult of access, afford a pretext and palliation for that repugnance to resort to isolation, which still exists in the minds of friends and guardians, but which is fading and falling, and must ultimately fall before the influence of a system of discipline, founded upon humanity, and which is open to investigation. The procrastination which occurs when an individual is attacked with insanity, in adopting the only course which can ensure the enforcement of judicious means of care and cure, is the result of various causes; frequently it may be traced to ignorance that the extravagance and incoherence which inflicts so much pain, and creates so much confusion, are symptoms of diseased organization; and to scepticism that these originate, increase, disappear, or are removed, according to the same principles, and nearly in the same manner that gout and jaundice are mitigated or removed. If the opinion were generally prevalent, that insanity in all cases, whether its development is determined by disappointment or by a blow on the head, whether signalized by great constitutional disturbance or apparent robustness of frame, depends upon bodily disorder, and can only be reached, whether curable or not, through the body, and by agents which act in accordance with the known laws of the economy; advice would be sought at once, or as speedily as in other maladies: the powers or efficacy of medicine would be put to a fair test, and it is admissible to anticipate that the mortality and evils of an intractable class of diseases would be materially diminished. Even now, when months are allowed to elapse before assistance is obtained, a very large proportion of the

more transient and trivial cases of mania are found to recover under judicious management, while one-third, at least, of the more desperate and chronic and hopeless cases, which are sent to public institutions because they have set all conciliatory and temporizing expedients at defiance and resisted the treatment pursued, are ultimately restored to such a degree of intelligence as to capacitate for the resumption of former pursuits and responsibilities, and for the performance of the duties of active life.

The character of the moral management is activity without excitement, progress, the combination of self-government, with appeals to the intellect and sentiments. There is always something to expect to prepare for; some anticipation or some retrospect. Patients are participators in every arrangement. They are identified with the recreation as well as the labors of the community. They are led to understand that each progressive step is not merely for them, but by them. They are their own gardeners, laborers, players, preceptors, librarians, and, under certain restrictions, their own police. Each day has its appropriate relaxation, as well as its duties; but monotony, which engenders torpidity rather than tranquillity, even the monotony of continued recreation, is obviated by useful pursuits and physical exertion. (See INSANITY.)

INSANITY, *in-san'-e-te* [Lat. *in*, not; *sanus*, sane, sound], is one of the most terrible diseases to which the human race is subject.

Causes.—The causes which may lead to insanity, particularly in those whose mental constitution is weak, are very numerous. In many cases the tendency to insanity is hereditary, and transmitted from parents to children. Excessive study, strong mental excitement, grief, jealousy, disappointment, frequently also lead to it. Religious, political, and commercial excitement are also fertile causes.

No fact is more clearly ascertained than the vast amount of insanity caused by drunkenness. The temporary insanity of intoxication cannot be indulged in with impunity; it may be frequently repeated, but at length the mind permanently gives way, and the individual may become a confirmed lunatic.

Characteristics.—Sometimes insanity comes on quite suddenly, without any warning whatever; at other times there is a previous derangement of the animal functions, loss of appetite, restlessness, and want of sleep. It is usual to distinguish insanity into different kinds.

1. *Moral insanity*, in which there is a morbid perversion of the feelings, affections and active powers, without any illusion or erroneous conviction impressed upon the understanding.

2. *Intellectual insanity*, affecting the reasoning powers, and which may be either general or partial, the latter as in monomania.

3. *Mania*, or raving madness, in which the mental faculties are notoriously impaired, the patient gives way to all sorts of extravagances, and if not prevented, will do mischief to himself or others.

4. *Dementia, imbecility, fatuity*, when the mental powers become gradually impaired, the sensibilities diminished, and the person at length becomes careless, or dead to all that is going on around him.

Usually, however, two or more of these kinds occur together. Moral insanity frequently manifests itself in a desire to steal, or appropriate the property of others. In monomania, the patient reasons correctly upon all matters except one, which forms the subject of his insanity. Imbecility usually commences with loss of memory and the power of concentrating the attention for any time upon one subject; then all control is lost over the thoughts, and the mind wanders meaninglessly from one subject to another; at length there is a carelessness to all that is going on around, and life may become a mere existence, the mental faculties being entirely lost.

Idiocy differs from imbecility in being congenital, while the latter is acquired, or produced by disease. Idiocy may be produced by various causes connected with the parents; as intermarriages of near relatives, intemperance, scrofulous habits, some powerful influence acting on the mother during pregnancy. Idiots present every degree of mental imbecility, down to the lowest shade, without sense sufficient to satisfy the mere wants of nature. The head of the idiot is usually very small, particularly in the regions of the forehead; in some cases, however, it may be quite natural, and in others large and misshapen. The beneficial effects of attention to the physical health, and of education, are manifested even in the case of idiots. (See IDIOCY.)

Treatment.—The chances of recovery depend greatly on the complication, or otherwise, of insanity with other diseases, particularly epilepsy or paralysis, with either of which it is nearly hopeless. It is also influenced by the form of the disease, the period of its duration, the age, sex, and constitution of the patient. The mean duration of cases terminating favorably is from five to ten months; after the latter period, recovery is very doubtful. In advanced life, insanity is generally permanent, and imbecility is very rarely curable. While insanity may arise from some affection of the brain which speedily terminates in death, yet, in general, it is not necessarily a fatal disorder, for lunatics have been known to live thirty, forty, or fifty years after being seized with their disease. It is one of the signs of the advance of the present age that the treatment of the insane is no longer what it was; they are no longer loaded with chains and confined to some dungeon, but are treated with kindness and consideration, and allowed all the liberty that the nature of

their malady admits of. In the cure of insanity, in which great progress has recently been made, the means adopted naturally resolve themselves into medical and moral. When the malady proceeds from, or is accompanied by, physical derangement, as it usually is, it is necessary to ascertain the nature of this, and to take means for its removal. If there be excitement and inflammatory action, mild antiphlogistic measures will be necessary, together with aperients and a low diet. If, on the contrary, there is debility and prostration of strength, a nourishing diet will be required. When, as is often the case, want of sleep is an attendant symptom, opiates are to be given. In all cases, exercise, fresh air, and cleanliness are required. The moral treatment of the insane consists in diverting their thoughts by occupations and amusements, and in gaining their confidence by kind and conciliatory measures.

A very erroneous idea exists, particularly among the ignorant, that if a person be insane, he cannot act or look like a rational being at all, but must be constantly doing things in an insane manner; consequently, if the individual be simply lunatic or monomaniac, without being actually under the influence of maniacal excitement, or even should he have a "lucid interval," that is, a temporary cessation of mania, and temporary return, either wholly or partly, of his rational condition, those around are apt to be lulled into a false security, the vigilance or attendance is relaxed, and a momentary return of the delusion is attended, perhaps, with the most serious consequences, rendering nugatory hours and days of anxious care. (See DELIRIUM, DELIRIUM TREMENS, DIPSOMANIA, MONOMANIA, MELANCHOLY, HYPOCHONDRIASIS, INSANE ASYLUMS, SUICIDE, IDIOCY, ETC.)

INSENSIBILITY, OR UNCONSCIOUSNESS. (See COMA, FAINTING, APOPLEXY, INTOXICATION, CONCUSSION, CONCUSSION OF THE BRAIN, SHOCK, ETC.)

INSPIRATION, *in-spe-ra'-shun* [Lat. *inspiratio*], the act of drawing air into the lungs, and the opposite of expiration, which consists of its expulsion; the two together constituting respiration. (See RESPIRATION.)

INSTRUMENTS, SURGICAL, *in'-stru-ments* [Lat. *instrumentum*]. But few of the mechanical agents used by the surgeon in the treatment of diseases or injuries can ever be of legitimate use to unprofessional persons living within reach of a medical man, but there are sparsely settled portions of the country where physicians are few and far between, and where such articles of utility could not be procured when wanted. It is advisable, therefore, that parties about to remove to such a location, should provide themselves with a few of those simple instruments, which in case of emergency, any one might use for the relief of pain and

sickness. The list might be extended by the party taking the trouble to get a little practical instruction from the family physician before removing.

The following list will include all, or nearly all, that could be of much service in the hands of an unprofessional:

Two pairs of Forceps, one straight and one curved, for tooth-drawing.	of necessity could be used as a stomach pump.
One Gum Scarificator, for lancing the gums of children during dentition.	One Silver Probe, for examining wounds.
Two Lancets for bleeding, and one Vaccinating Lancet.	One Tenaculum, a slender hook to which a handle is attached, used for laying hold of and drawing forward a bleeding vessel to permit of its being secured by a string.
One pair of Forceps for dressing wounds.	One Tourniquet, an instrument used for compressing a divided artery, and thus arresting hemorrhage until it can be tied.
One pair of Spring Forceps for seizing a divided artery.	One silver, and two or three gum-elastic Catheters, of different sizes, for drawing off the water.
Two pair of Scissors, one with sharp, and one with blunt points.	One case of Straight and Curved Needles and some silk thread for sutures.
One Caustic Holder.	
One small Syringe for the ear and nostrils, and for cleansing wounds.	
Two Enema or Injection Syringes, one of them with a long pipe, which in case	

All of the above can be safely used by a man of ordinary intelligence who has had a little practical instruction in their management.

INTEMPERANCE. (See STIMULANTS, ALCOHOLIC; DIPSO MANIA, INTOXICATION, DELIRIUM TREMENS, INSANITY, HEALTH, LONGEVITY.)

INTERCOSTAL, *in-ter-kos'-tal* [Lat. *inter*, between, and *costa*, a rib], is a term applied to certain muscles, vessels, etc., situated between the ribs. There are two sets of intercostal muscles, the external and internal, which decussate each other like the strokes of the letter X.

INTERMARRIAGE. (See MARRIAGE.)

INTERMITTENT, *in-ter-mit'-tent* [Lat. *inter*, between, and *mitto*, I send], a term applied to diseases, which, like ague and neuralgia, come on in paroxysms, between which there is an interval of comparative freedom from the symptoms of the disease. The term is also applied to the pulse, when some of its beats are as it were omitted.

INTERMITTENT FEVER, OR FEVER AND AGUE. (See AGUE.)

INTERMITTING PULSE. (See PULSE, EXERCISE.)

INTESTINAL WORMS. (See WORMS.)

INTESTINES, OR BOWELS, *in-tes'-tinz* [from Lat. *intus*, within], in Anatomy, is that part of the alimentary canal which extends from the stomach to the anus, and is situated in the cavity of the abdomen. It is composed of three coats, or membranes—the peritoneal, the muscular and the villous. It is divided into the small and large intestines. The small intestines have three divisions—the *duodenum*, so called from its length,

being about twelve finger-breadths, and which commences at the pyloric end of the stomach; the *jejunum*, so named from being generally found empty; and the *ileum*, terminating by a transverse opening into the large intestines, called the ileo-cæcal valve. The large intestines have likewise three divisions—the cæcum, colon, and rectum. The *cæcum*, or blind-gut, so called because it forms a cul-de-sac, or short rounded pouch, is about two and a half inches in length, and has attached to it a narrow round and tapering part called *appendix cæci*. It is situated in the right iliac region. The colon first ascends towards the liver, then passes across the abdomen under the stomach to the left side, where it is contorted like the letter S, and descends to the pelvis. Hence it is divided into three parts, called the ascending portion, the transverse arch, and the sigmoid flexures. The rectum is a continuation of the colon in the pelvis, proceeding in a straight line to the anus. The entire length of the intestinal canal is about six times that of the body. The small intestines have internal membranous folds, called *valvule conniventes*; while the large intestines have three strong muscular bands, which run parallel upon the surface. (See ANATOMY, ALIMENTARY CANAL, COLON, DIGESTION, ENTERITIS, PERITONITIS, RECTUM.)

INTOXICATION, *in-toks-e-ka'-shun* [Lat. *in*, and *toxicum*, a poison], the state produced by the excessive use of alcoholic liquids or inebriating substances. In general, intoxication comes on gradually, and several stages may be noted in its progress. Thus, it shows itself at first by a general liveliness and excitability; during this stage, the circulation of the blood becomes more rapid, and all the functions of the body are performed with more freedom. While in this condition, the mental powers seem to act more freely; the imagination is stimulated, the fancy more lively, and the feeling of strength and courage increased. The effect on the brain is much more decided in the second stage of intoxication. Then, all the peculiarities of character, the weaknesses and failings of temperament which the individual can keep under and conceal in his sober moments, manifest themselves. Consciousness begins to be attacked, secret thoughts are revealed, and the sense of propriety lost. The peculiarities of this stage are summed up in the old proverb, *in vino veritas*, “in wine there is truth.” In the next stage, consciousness is still more weakened, the balance of the body cannot be kept, the sight becomes confused, and the brain dizzy. After this point, the mind seems to be entirely overwhelmed by the tumult of animal excitement, consciousness is utterly extinguished, the tongue can only mutter incoherent gibberish, the face becomes suffused with blood, the eyes protrude, and perspiration streams from the pores of the skin. Lastly, when completely prostrated, the victim of intoxication sinks into a heavy slumber,

closely resembling the stupor of an apoplectic fit. It is difficult to distinguish intoxication in its most profound state from apoplexy, asphyxia, or the extreme effects of cold. In general the odor of the breath is one of the best means of diagnosis. (See APOPLEXY.)

Treatment.—In profound intoxication, recourse should at once be had to the stomach pump in order to remove any of the alcoholic fluid not already absorbed. Strong tea or coffee should then be administered, and the heat of the body promoted if it has fallen. Sometimes cold effusion over the head and chest will be of service. (See DIPSO MANIA; STIMULANTS, ALCOHOLIC; INSANITY, DELIRIUM TREMENS.)

INULA HELENIUM, *in'-u-lă he-le'-ne-um*, or elecampane. This is a very large herbaceous plant belonging to the Nat. order *Compositæ*. It yields a starch called *inulin*. Elecampane has been used in medicine since a very early age. It is aromatic, stimulant and tonic, and has also diuretic, diaphoretic, emmenagogue and expectorant properties. Formerly it was employed in complaints peculiar to females, and is now used considerably in suppressed menstruation.

The chief use of elecampane is in lung affections, derangements of the liver, and general debility. Dose: of fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces, every three or four hours. (See INFUSION.)

INUNCTION, *in-un-k'-shun* [Lat. *inunctio*], the rubbing of an ointment upon the skin, for the purpose of promoting the absorption into the system of any medical substance contained in the ointment. Ointments which contain mercury or iodine are principally used with this intent.

Inunction of cod-liver oil in cases of great emaciation, especially in children and in patients of a consumptive or scrofulous tendency, has been found of decided benefit. In cases, too, of obstinate vomiting, for instance, in young infants, when everything is rejected by the stomach as soon as taken, the rubbing in of cod-liver oil twice a day, may be resorted to.

INVERSION, *in-vur'-shun* [Lat. *inversio*], the turning inside out of an organ, such as the womb. It is a serious accident, which sometimes occurs under peculiar circumstances, as after labor. The assistance of a medical man is always imperatively called for.

IODIDE OF POTASSIUM, *i'-o-dide po-tas'-se-um*, is the most important of the several preparations of iodine, and is applicable to an extended number of diseases. It produces very marked effects on the secretions, which it uniformly increases, and into which it readily passes. It generally increases the appetite and flesh. The general character of its action is to remove superfluous tissue, carrying off the material by

the kidneys. It is very beneficial in scrofula in all its forms; occasionally in chorea after the preparations of iron have failed; in gout, albuminuria, ague; in the various forms of syphilis, syphilitic sore throat, gonorrhœa, leucorrhœa, neuralgia, bleeding from the lungs, and lead palsy. In that form of rheumatism characterized by wandering pains in the bones, its efficacy is attested by the highest authority. It is pronounced the best remedy in mercurio-syphilitic sore throat. It has been successfully employed in scrofulous inflammation of the eye, given in the compound syrup of sarsaparilla. This valuable medicine, when given in small doses, will occasionally give rise to troublesome symptoms, and severely affect the system. Five grains have produced catarrh, conjunctivitis, difficulty of breathing, and other serious disturbances. Dose, from 2 to 10 grains. (See POTASSIUM.)

IODIDE OF SULPHUR. (See SULPHUR, IODIDE OF.)

IODIDES OF ARSENIC AND MERCURY, SOLUTION OF.

(See SOLUTION IODIDES OF ARSENIC AND MERCURY.)

IODINE, IODINUM, OR IODUM, *i'-o-din* [Gr. *iodes*, violet-colored], in Chemistry, symbol I, equivalent 127, specific gravity of vapor, 7.186. Iodine was discovered by Courtois, in 1812, in the waste liquors produced in the manufacture of soda from sea-weed. It is contained in nature, principally in sea-plants and sea-water, in the forms of iodide of sodium, potassium, and magnesium. It also occurs combined with silver in *iodite*, a mineral found sparingly in Peru. The great source of iodine is burnt sea-weed, commonly known as kelp. Iodine generally occurs in commerce in the form of bluish-black scales having a metallic lustre somewhat resembling plumbago. At ordinary temperatures, it is volatile, emitting an odor closely resembling chlorine, but somewhat weaker. Its specific gravity is 4.947. It fuses at 225° and boils at 347°, giving forth a magnificent violet vapor, from which it derives its name. Iodine taken internally in large doses is a violent poison, but in small quantities it is much employed in the treatment of scrofula and syphilis, to remove glandular swellings, swellings of the joints, etc. A strong solution of it may be frequently painted over these swellings with advantage. It is also of great use in the treatment of goitre. (See GOITRE.) The solution is made by dissolving 20 grains iodine and 30 grains of iodide of potassium in 1 fluid ounce of distilled water. It is used externally or internally. Dose: internally, 5 to 10 drops. The tincture is made by dissolving $\frac{1}{2}$ ounce of iodine and $\frac{1}{4}$ ounce of iodide of potassium in 1 pint of rectified spirits. Dose: 5 to 20 drops. The ointment is made by mixing together 32 grains each of iodine and iodide of potassium, with 1 fluid dram of proof spirit and 2 ounces of prepared lard. For liniment dissolve $1\frac{1}{2}$ ounce of iodine, $\frac{1}{2}$

ounce of iodide of potassium, and $\frac{1}{4}$ ounce of camphor in 10 fluid ounces of rectified spirit. The principal of the other preparations containing iodine are—iodide of iron: dose, 1 to 5 grains; iodide of potassium, dose: 2 to 10 grains; red iodide of mercury, dose: $\frac{1}{16}$ to $\frac{1}{4}$ grain; green iodide of mercury, dose: 1 to 3 grains; iodide of sulphur, used in making iodide of sulphur ointment. Iodine and its preparations are much used by medical men, but with the exception of the tincture, can scarcely be said to fall within the sphere of domestic medicine.

ODO-BROMIDE OF CALCIUM COMPOUND ELIXIR. (See CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF.)

ODOFORM, *i-od'-o-form*, is volatile, insoluble in water, soluble in alcohol and ether, and has a very large proportion of iodine. Its therapeutic uses are analogous to those of iodine and the iodides, over which it has the advantage of being less irritant, more readily absorbed and assimilated. In small medicinal doses, iodoform appears to possess a union of tonic, stimulant and alterative properties, exercising at the same time a remarkable influence on the nervous system. Various forms of scrofula, syphilis, goitre, amenorrhœa, obstinate skin diseases, such as lepra, salt rheum, and chronic eczema, etc., have been benefited by its use. Much testimony could be adduced relative to its utility in scrofulous enlargements of the glands, goitre, and neuralgic affections. Dose: one to three grains.

IPECACUANHA, OR IPECAC. (See CEPHÆLIS.)

IPECACUANHA SPURGE. (See EUPHORBIA IPECACUANHA.)

IPOMÆA JALAPA, *i-po-me'-a ja-lap'-a*, or jalap, a Mexican plant belonging to the Nat. order *Convolvulaceæ*. The tuber is the part used in medicine. It is a safe and efficacious purgative, operating with rapidity and certainty, causing little irritation, producing copious watery stools, and leaving but little subsequent constipation. Its efficacy is greatly increased by the addition of cream of tartar. It has been successfully used in dropsy, constipation, disease of the brain, and scrofulous disease of the joints. It should not be given in inflammatory conditions of the alimentary canal during pregnancy, nor during the menstrual discharge. Dose of the powder for an adult, 5 to 25 grains; for an infant, 2 to 5 grains; of the fluid extract, $\frac{1}{4}$ to 1 teaspoonful; of the solid extract, 3 to 8 grains; of the tincture, $\frac{1}{2}$ to 2 teaspoonfuls; of the compound jalap powder, composed of 5 ounces of powdered jalap, 9 ounces of cream of tartar, and 1 ounce of ginger, 30 to 60 grains, repeated in four to six hours if necessary; *jalapin*, the active principle of jalap, 1 to 2 grains.

IRIS. (See EYE.)

IRIS FLORENTINA, *i'-ris flor-en-ti'-na*, or orris root, a European

plant belonging to the Nat. order *Iridaceæ*. It possesses cathartic and diuretic properties, and in large doses acts as an emetic.

The earlier writers favor orris in the treatment of constipation and want of tone of the digestive organs; in dropsical affections, and in purulent discharges from the mucous membrane of the urethra. It is pleasant to the taste, and forms an unobjectionable medicine. The root has been used to conceal obnoxious breath, and enters into the composition of many tooth powders. It is chiefly employed now in compounds, on account of the pleasant odor it imparts. Fluid extract is the most convenient preparation. To be used at discretion.

IRISH MOSS. (See CHONDRUS.)

IRIS VERSICOLOR, *i'-ris ver'-se-kul-ur*, or blue flag, is a perennial plant belonging to the Nat. order *Iridaceæ*. It is common throughout the United States and Canada, and is known by the names flag lily, fleur-de-lis, and liver lily. It contains an oleo-resin called *Iridin*. The root is the part used medicinally. It is cathartic, alterative, anthelmintic and diuretic, and has been used with great success in dropsy, scrofula, and affections of the liver, kidney and spleen. Dose: of the powdered root, 5 to 20 grains; fluid extract, 20 to 50 drops; solid extract, 1 to 4 grains; iridin, $\frac{1}{2}$ to 5 grains; tincture, 1 to 2 teaspoonfuls.

IRON, *i'-urn* [Ang.-Sax. *iren*], in Chemistry, symbol Fe (ferrum), equivalent 28, specific gravity 7.844. This important metal is most extensively diffused over nature, occurring not only in the inorganic kingdom, but entering into the composition of vegetable and animal structures. It is found in nearly every part of the earth, in the form of ores. In its pure state, iron presents a dusky-gray color and a rather feeble lustre, which is greatly improved by polishing. It is not affected by dry air or oxygen; but if moisture be present, it gradually passes into the state of hydrated sesquioxide, or rust, as it is termed in common parlance. Iron combines with most of the metals to form alloys. It decomposes the diluted hydrogen acids with great facility, eliminating hydrogen. Nitric acid attacks it with the evolution of binoxide of nitrogen. Dilute sulphuric acid also dissolves iron with evolution of hydrogen. Iron, in the metallic state, is of great use to the chemist for precipitating certain metals, such as copper, from their solutions in the metallic form. The tonic and strengthening properties of iron are well known, even popularly, and, probably, we have no remedy of the kind so generally useful and applicable in cases of debility; at the same time, it is not so much adapted for domestic use as many medicines of less value. The cases in which preparations of iron are most employed are not emergencies, they are usually constitutional affections of some standing, in which medical advice is not only requisite for the general treatment, but also

as a guide for the administration of the iron, which, improperly given, may do much mischief; persons who are habitually costive, who suffer from piles, or from determination of blood to the head, require to be especially careful with respect to the use of medicines containing iron; and should never take them without medical advice. The weak, the pallid, the delicate, may, for the most part use them with greater safety, and very generally with benefit.

The following are the principal preparations of iron used in medicine:

Reduced iron, or powder of iron—dose : two to six grains.	sesquioxide, carbonate, subcarbonate and red oxide of iron—dose: ten to forty grains.
Tincture of the acetate of iron—dose: ten to forty drops.	Hydrated sesquioxide of iron, the most efficient antidote to poisoning by arsenic—dose: a tablespoonful every five or ten minutes.
Ammonio-chloride of iron—dose : four to twelve grains.	Phosphate of iron—dose: three to ten grains.
Ammonio-citrate of iron—dose: five to ten grains.	Pyrophosphate of iron—dose three to ten grains.
Ammonio-tartrate of iron—dose: three to eight grains.	Citrate of iron and quinine—dose: five to ten grains.
Arseniate of iron—dose: one-twentieth to one-tenth of a grain.	Citrate of iron and strychnia—dose: two to three grains.
Bromide of iron—dose: one to three grains.	Sulphate of iron, or green vitriol—dose: one-half to three grains.
Carbonate of iron with sugar—dose: three to twenty grains.	Potassio-tartrate of iron—dose: five to twenty grains.
Citrate of iron—dose two to eight grains.	Tannate of iron—dose: ten to thirty grains.
Iodide of iron—dose: one to five grains.	Valerianate of iron—dose: one-half to one grain.
Syrup of iodide of iron—dose: fifteen to sixty drops.	Wine of iron—dose: one to four teaspoonfuls.
Lactate of iron—dose: ten to twenty grains.	Citrate of iron, quinine and strychnia—dose three to five grains
Solution of perchloride of iron—dose: three to ten drops.	Dialysed iron—dose: ten to twenty drops.
Muriated tincture of iron—dose: ten to forty drops.	
Solution of pernitrate of iron—dose: ten to sixty drops.	
Peroxide of iron, commonly called the	

A great many very elegant preparations of the different salts of iron, in combination with other tonic and blood-restoring remedies, are to be found on the druggists' shelves in every city and village throughout the country. They are principally in the form of syrups or elixirs. The strength varies according to the manufacturer, but as the dose is always to be found on the label, no mistake need ever occur. (See CITRATE OF IRON, CITRATE OF QUININE AND IRON, CITRATE OF IRON AND STRYCHNIA.)
 IRON SPRINGS. (See MINERAL WATERS.)
 IRON-WEED. (See VERNONIA FASCICULATA.)
 IRON-WOOD. (See OSTRYA VIRGINICA.)

IRRITABILITY, *ir-re-ta-bil'-e-te* [Lat. *irritabilitas*], cannot perhaps have a better definition than that of Abernethy, "excited debility." It is a symptom of many diseases, trying both to patients and to their attendants, but one for which every allowance and consideration ought to be made. Those who have never suffered from the weakness of disease, especially such as affects or has affected the nervous system, cannot imagine in how many ways, which appear not only trifling, but absurd, to a person in health, the irritability of the invalid may be jarred upon.

The term irritability is also used to express that property of muscular fibre, to which it owes its powers of contraction.

IRRITATION, *ir-re-ta'-shun* [Lat. *irritatio*], may be defined as diseased excitement, not amounting to inflammation. Many of the diseases of children partake more of irritation than inflammation. What is called irritation of an organ may take place at a distance from the source of the irritation; thus, worms and other matters in the intestines may cause convulsive and other affections consequent upon irritation of the brain, or the irritation of the gums in teething may also cause convulsion, or spasmodic croup. The irritant action being in these cases in the first place felt by the brain, and thence reflected so as to affect the muscles which are thrown into spasm.

IRRITATION OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

ISCHURIA, *is-ku'-re-a* [Gr. *ischo*, I retain; *ouron*, the urine], denotes a retention of the urine, and is distinguished from dysuria in that, in the latter case, the discharge is attended with much difficulty, whereas in the former there is a total retention. This last may arise either from mechanical obstruction or paralysis of the bladder, or it may arise from the kidneys having lost the power of secreting the urine. The latter (*ischuria renalis*) is more properly termed suppression of urine, and is known by the bladder being found to be empty on introduction of the catheter. It is usually occasioned by long over-indulgence in strong drinks. The urea and other elements of the urine, instead of being discharged, are accumulated in the blood. The patient complains of uneasiness in the head and loins, becomes heavy and drowsy, sinks into a comatose state, and expires in the course of four or five days. Medicine can hold out little hope of relief in this disease. (See URINE; BLADDER, DISEASES OF THE.)

ISINGLASS, *i'-zing-glas*, a very pure form of gelatine or animal jelly, prepared from certain parts of the entrails of several fish. The best isinglass is prepared in Russia, from the membranes of the sturgeon, especially from its air-bladder and sounds, which are very large. Isinglass of the purest kind is used in confectionery, and also largely in

refining wine and beer. It is almost without color, taste, or smell; is usually in thin pieces; and is soluble in water. It is dissolved readily by most acids, but is not soluble in alcohol.

ISSUE, *ish'-shu* [Fr. *issuer*, to go out; Lat. *fonticulus*, a little fountain], in Surgery, is an ulcer artificially formed, and kept open, so as to discharge matter, for the purpose of removing an unhealthy condition from some neighboring part of the system. It is usually formed by making an incision through the integuments with a lancet, or other sharp instrument, sufficiently large for the insertion of one or more peas, which are retained there by a strip of adhesive plaster, so as to prevent the wound from healing, and keep up a state of constant irritation. The actual cautery and caustic potash are also employed in forming issues, being applied to the part till it sloughs, and the ulcer thus formed being kept open, either with peas or some irritating substance. Setons are another form of issue, made by passing a broad flat needle, threaded with silk or other suitable substance, under a portion of the skin, and leaving the silk in the passage, with an end hanging out on each side. Issues are principally employed for the removal of chronic disorders of internal organs, particularly such as are of an inflammatory nature, the object being to withdraw the action from the internal organ, where it might be attended with danger, to without, where it is important. In the management of all issues great cleanliness should be observed, and the part dressed several times a day. A fresh portion of silk should be pulled through the wound every day, so as to keep up a constant irritation and discharge.

ITCH, *itsh* [Ang.-Sax.; Lat. *scabies*, from *scabo*, I scratch], a disease of the skin characterized by an eruption of pustules or of small vesicles, the two being frequently intermixed, and accompanied by an intolerable itching; whence it derives its name. It has been divided into different classes; but the distinction is of no practical importance. It occurs chiefly about the fingers and wrists, and the flexures of the joints; but it may also attack other parts of the body, the face being the only part on which it never appears. It is caused by a minute insect—the *Acarus* or *Sarcoptes scabiei*—lodging under the skin, and is readily communicated by contact. The only proof of the existence of itch is the presence of the insect, and this is readily detected by means of the microscope.

Treatment.—Sulphur is usually regarded as the great specific for this disease. It is commonly used in the form of an ointment, smeared over the parts once or twice a day, washing them carefully with soft soap and hot water for some time before each application. This is so necessary to cure, that some hold that it is principally owing to the action of

the soft soap. The following ointment is also recommended: 2 parts of sublimed sulphur; 1 part of subcarbonate of potash; and 8 parts of lard. This usually takes from six to eight days to effect a cure. The following ointment, however, is said to effect a cure in four days, viz., recent grains of staphisagria, in powder, 3 parts by weight; and boiling lard, 8 parts, digested for twenty-four hours at a temperature of 100° in a sand-bath, and strained. A mixture of spirits of turpentine and coal-oil as strong as can be borne, will generally suffice to destroy the insect. One dram of carbolic acid to $\frac{1}{2}$ an ounce of glycerine, in 8 ounces of soft water is an effectual remedy. A solution made of 1 part chloride of lime to 20 or 30 parts of soft water, will also speedily effect a cure.

After a cure is effected, care must be taken to destroy the insects and eggs that may be among the clothes of the patient. If these are not destroyed, they should be exposed to a temperature of not less than 180°, by being put into an oven, or into hot water, or by ironing them with a hot iron; or they should be well fumigated with sulphurous acid gas, which may be formed by igniting a rag dipped in melted sulphur. (See MERCURIAL OINTMENT.)

ITCH, BARBERS', *its̄h bar'-burs*. This is a very troublesome disease occurring on the bearded part of the face. It is very difficult to cure. The beard must be kept clipped with the scissors, and the razor laid by, frequent bathing with castile soap and water is an essential part of the treatment. Tar ointment and carbolic acid, the same strength as for true itch, used twice or three times a day, is the most likely to effect a cure. In obstinate cases resort must be had to a physician. (See ITCH.)

ITCH, GROCERS'. (See IMPETIGO; SKIN, DISEASES OF THE.)

IVY. (See HEDERA HELIX.)

IVY, AMERICAN. (See AMPELOPSIS.)

IVY, POISON. (See RHUS TOXICODENDRON.)

J.

JABORANDI. (See PILOCARPUS PENNATIFOLIUS.)

JAIL FEVER, *jale*, a form of typhus. (See TYPHUS FEVER.)

JALAP. (See IPOMŒA JALAPA.)

JAMES' POWDER. (SEE ANTIMONY.)

JAMESTOWN-WEED, OR JIMSON. (See DATURA STRAMONIUM.)

JAUNDICE, OR ICTERUS, *jün'-dis ik'-te-rus* [Fr. *jaunisse*, from

jaune, yellow], cannot be looked upon as a disease in itself, but is rather a symptom of some morbid action going on in the liver, and one of peculiar interest and importance.

Causes.—There are two distinct classes of jaundice. In the one, this symptom is due to some obstruction in the passage of the bile from the liver after it has been duly secreted; and in the other, the bile has not been secreted at all, but is retained in the blood. Jaundice may be congenital, the little infant being born without any bile-ducts to convey away the secretion. The bile-ducts may be obstructed by pressure from without, as by the gravid uterus or distended bowels, or there may be a gall-stone blocking them up from within in its endeavor to pass from the gall-bladder to the bowels. Cancer of the liver, and adhesive inflammation of the ducts may give rise to it; and there is one form due to mental influence. Thus, Dr. Watson mentions a case in which an unmarried female became intensely yellow upon its being disclosed that she had borne children; and another of a medical man who became jaundiced from the intense anxiety caused by an approaching examination. When jaundice affects newly-born infants from some defect in the development of the biliary ducts, it is called *icterus neonatorum*.

Jaundice is not generally a dangerous affection unless due to organic disease of the liver, or mental shock. Old people, whose constitutions are already worn out, frequently become emaciated, and never rally from its attack; and in some cases it seems to take a deadly turn from the first, the skin of the patient assuming a greenish-black color.

Symptoms.—The skin assumes a greenish-yellow color, and is subject to most intense itching. The complexion is sallow, and the whites of the eyes tinged with biliary matter, being of a dull yellow color. The urine becomes very highly colored, resembling in appearance blood or old ale. The stools are of very light color, containing little or no biliary coloring matter, and are of a clayey nature. The bowels are much constipated, wanting the purgative effect of the bile. The intellect seems to become impaired in prostrated cases, and the patient grows stupid. There is much emaciation, and a strong tendency to hemorrhage is manifested by various organs of the body. One form of jaundice, as has been stated, is due to the breaking up of the biliary ducts, and this is often due to the presence of a gall-stone which is trying to pass, and which gives rise to intense suffering and acute pain in the region of the liver. The patient suffers severely from shivering and distinct rigors; there is often nausea and vomiting, and in some cases in which the foreign body does not pass, the patient becomes exhausted and sinks under protracted sufferings. Gall-stones are more common in females than in males, as they lead a more indolent and sedentary

life, which are strong predisposing causes to the formation of biliary calculi. Gall-stones frequently occur in those who are fat, and are rare before the age of forty. They are found frequently in great numbers in the gall-bladder of the same patient. Thus, we have ourselves seen twenty or thirty in the same body; and instances are placed on record in which several hundreds of these bodies have existed together. When so many occur in the same patient, they are smooth and angular in form, and of a small size; but should there be one solitary gall-stone formed, it assumes an oval form, and grows to a large size.

Treatment.—Before having recourse to medicine in the treatment of jaundice, we must first endeavor to find out the morbid condition on which it depends, and, if possible, to relieve it. Thus, should inflammation of the liver be present, this must be treated as described in the article HEPATITIS; when it is due to some obstruction of the bile-ducts, hot fomentations, warm poultices, and the warm bath, will give relief, the patient being at the same time placed on low diet. Opium must be given internally to allay pain and relieve spasm, and if possible, to allow the gall-stone to pass, should there be one already in the canal of the common bile-duct.

Take of Bicarbonate of potash.....Half a dram.
Nitrate of potash.....One scruple.
Laudanum.....One dram.
Camphor water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls three times a day.

Mustard poultices and turpentine fomentations may be applied over the seat of the pain, and anodyne injections thrown up the bowels. When the pain is relieved, and the biliary calculus has in all probability passed into the bowels, the following active purgative should be given to carry it off:

Take of Sulphate of magnesia.....Six drams.
Carbonate of magnesia.....Three drams.
Peppermint water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls three times a day.

When the disease is due to suppression of bile, purgatives are also useful. Taraxacum or dandelion has been recommended by some medical men, and may be given thus:

Take of Extract of Dandelion.....One dram.
Powdered gum acacia.....Two drams.
Pure water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls three times a day.

In all instances the patient should be kept in bed and placed on a restricted diet. Manganese has been well spoken of as a remedy in this disease: in large doses it acts as a purgative, and is supposed to increase

the excretion of bile. It may be given in the form of the sulphate, thus:

Take of Sulphate of manganese.....One and a half dram.
Water.....Two ounces.—*Mix.*

Make a draught, and let it be taken early in the morning.

Indolent and sedentary habits must be given up, and more active exercise taken by those who have a tendency to grow stout, and to the formation of biliary calculi.

In cases of jaundice from mental emotion, saline purgatives should be freely given, especially the sulphate of magnesia, as directed above. During the last few years podophyllin, which acts in large doses as a drastic cathartic, and is much used in liver complaints, has been recommended. It may be given in the following pill:

Take of Podophyllin.....Three grains.
Compound extract of colocynth.....Twenty-four grains.
Extract of henbane.....Six grains.—*Mix.*

Beat into a mass, divide into six pills, and give 1 every morning.

The itching of the skin may be relieved by a lotion containing glycerine. The following is the proper strength:

Take of Glycerine.....Two ounces.
Water.....Two ounces.—*Mix.*

Make a lotion, and apply it frequently to the part affected. (See BILE, BILIARY DISORDERS, BILIOUSNESS, GALL-BLADDER, GALL-STONES, LIVER, ETC.)

JAW, LOWER, DISLOCATION OF. (See DISLOCATIONS.)

JAW, LOWER, FRACTURE OF. (See FRACTURES.)

JAWS. (See ANATOMY, FACE.)

JEALOUSY. (See PASSIONS.)

JEFFERSONIA DIPHYLLA, *jef-fer-so'-ne-a di-fil'-la*, or twinleaf, a small perennial plant belonging to the Nat. order *Berberidaceæ*. It grows throughout the Middle and Western States. The root, which is the part used, is diuretic, alterative, antispasmodic and diaphoretic, and has been found beneficial in chronic rheumatism, dropsy, spasms, cramps and nervous affections. Dose: of the decoction, 2 to 4 fluid ounces; of the tincture, 1 to 3 teaspoonfuls, three times a day. (See DECOCTION.)

JEJUNUM, *je-ju'-num* [Lat. *jejūnus*, hungry], the second portion of the small intestines, so called from its being generally found empty in the dead body. (See INTESTINES.)

JELLY. (See COOKERY FOR THE SICK.)

JERSEY TEA. (See CEANOTHIS.)

JERUSALEM OAK. (See CHENOPODIUM ANTHELMINTICUM.)

JESSAMINE, YELLOW. (See GELSEMIUM SEMPERVIRENS.)

JESUIT'S BARK. (See CINCHONA.)

JEWEL WEED. (See *IMPATIENS PALLIDA*.)

JIMSON. (See *DATURA STRAMONIUM*.)

JOHNSWORT. (See *HYPERICUM PERFORATUM*.)

JOINTS, *joints* [Lat. *junctura*], also called articulations. The joints generally, from their mobility and exposed situation, are very liable both to accident and disease, in either case much care on the part of the attendants, and much patience on that of the patient, is called for, as it need scarcely be remarked that the most perfect rest is, in most cases of disease affecting the joints, the essential, for which no other remedial measures will compensate. Incurable disease of the bones of a joint does not now, under the improvements of modern surgery, necessitate the loss of the limb—the joint, such as the elbow, and even the knee, may be cut out, and in the course of time, a tolerably useful member remain, a kind of new joint being formed. (See *ANATOMY, ANKLE, ELBOW, HIP-JOINT, KNEE, BONES, DISLOCATIONS, ETC.*)

JOINTS, DISLOCATIONS OF. (See *DISLOCATIONS*.)

JOY, *joy* [Lat. *gaudium*, joy; *gaudeo*, to rejoice]. This powerful and instantaneous mental emotion, may act beneficially upon the body, but it may do so in the reverse. There are so many recorded instances, either of overturned reason, or of death resulting from excessive and sudden joy, that too great caution cannot be exerted in arousing it in persons of a nervous temperament, or in those who are debilitated by disease. Epilepsy has resulted from sudden joy. (See *PASSIONS*.)

JUGLANS CINEREA, *ju'-glanz sin-e-ré-a*, or butternut tree, a large tree belonging to the Nat. order *Juglandæ*. It grows throughout Canada and the Northern, Eastern, and Western States, and is called also the white walnut tree. The bark of the root and the leaves are the parts used in medicine. They contain a resin called *juglandin*. Butternut is a mild cathartic, very efficacious in habitual constipation, dysentery, and other affections of the bowels. Its action produces no debility. It is much used as a domestic remedy in intermittent and remittent fevers. Juglandin answers an admirable purpose as a laxative and cathartic. Dose: of fluid extract, 1 to 2 teaspoonfuls; solid extract, 5 to 20 grains; juglandin, 1 to 5 grains; decoction, 1 to 2 fluid ounces, three or four times a day. (See *DECOCTION*.)

JUGULAR VEINS, *ju'-gu-lar* [Lat. *jugulum*, the neck], are the veins which run down the sides of the neck, and carry the blood downwards from the head. They are divided into external and internal, the two afterwards uniting and going with the subclavian vein to form the superior *vena cava*, which terminates in the superior part of the right auricle of the heart.

JUNIPER BERRIES. (See *JUNIPERUS*.)

JUNIPERUS, *ju-nip'-e-rus*, a genus of plants belonging to the Nat. order *Pinaceæ*. The *Juniperus Communis*, or common juniper, is a bushy shrub, common to both the north of Europe and America. Juniper berries are stomachic, carminative, and diuretic, and act as a healthful stimulant in chronic affections of the bladder. They are principally used as an addition to more powerful diuretics in dropsical affections. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 1 to 2 fluid ounces; of the oil, 1 to 5 drops, every three or four hours. (See INFUSION.)

The *Juniperus Sabina*, or common savine, is a native of the south of Europe, and of the northwest of America. The tops of the plants are the parts used. It is a stimulant, especially to the skin and uterus, and has been found useful in complaints of the kidney, suppression of the urine, and suppressed menstruation. Dose: of the fluid extract, 10 to 30 drops; solid extract, 1 to 5 grains; oil, 1 to 6 drops; decoction, 2 to 4 fluid ounces, three or four times a day. (See DECOCTION.)

The leaves of the *Juniperus Virginiana*, or red cedar, which grows throughout the United States and Canada, possess similar properties to the savine, and may be used in similar cases.

K.

KALMIA LATIFOLIA, *kal'-me-a lat-e-fo'-le-a*, sheep laurel, or mountain laurel, a perennial plant, belonging to the Nat. order *Ericaceæ*. It grows in rocky soils and in damp places all over the United States. In large doses it is poisonous and requires to be used with great caution. Medicinally it is sedative and astringent, and has acquired a reputation in syphilis, jaundice, ophthalmia, neuralgia and inflammatory fevers. The fresh leaves stewed in lard, are useful in scald head and other affections of the skin. Dose: of the powdered leaves 10 to 30 grains; tincture, 10 to 20 drops.

KAMELA. (See ROTTLEA TINCTORIA.)

KAVA-KAVA, *kä'-va-kä'-va* a new drug lately introduced as a remedy for the cure of gonorrhœa. It is prepared from the root of the *Piper Methysticum*, a tree found growing in Tahiti and other Pacific islands. The natives use it in consumption and bronchitis, and in this country it has been found useful in gonorrhœa, gleet, rheumatism and gout. Dose of the fluid extract, 30 to 60 drops, three times a day, in a goblet of water.

KELP, OR BARILLA. (See BARILLA.)

KERMES MINERAL. (See ANTIMONY.)

KEROSENE. (See PETROLEUM.)

KIDNEY, *kid'-ne* [Ang.-Sax.; Lat. *ren*], is the name of a double gland having for its office the secretion of the urine. The form of the kidney resembles that of a French bean, its average length being from four to four and a half inches, its breadth two inches, and its thickness one inch. The two kidneys are situated in the lumbar region, one on each side of the spine, on a level with the last two dorsal and the first two lumbar vertebræ; they are of a brownish-red color, flattened from before backwards, and grooved on the interior border for the great vessels. They are covered by a thin, firm, transparent, cellular envelope, and internally are composed of two substances—an exterior or cortical, and an interior or medullary. The kidneys are well supplied with blood-vessels and nerves, in accordance with the importance of their function. The renal arteries come directly from the aorta, and the large veins terminate in the vena cava. The nerves come from the renal plexus. (See KIDNEY, DISEASES OF THE; BRIGHT'S DISEASE, URINE.)

KIDNEY, DISEASES OF THE. The kidneys are subject to a variety of dangerous and painful diseases arising from various causes. They may be arranged in two distinct classes—those which are the result of some cause acting locally, as calculi, retention of urine, or a blow on the loins; and those which are the result of a constitutional cause, acting upon the kidney by inducing an abnormal condition of the blood. (For disease of the kidney, arising from renal calculi, see CALCULUS, URINE.)

In retention of urine, the ureter, pelvis, and infundibula become much dilated, and the cortical substance expanded and lobular on the surface. The mucous membrane frequently becomes ulcerated, inflammatory deposits occur in the substance of the kidney, and the gland is destroyed by a slow atrophy, or more rapidly by suppurative inflammation. Both kidneys are usually affected, but in different degrees. (See ISCHURIA.) Disease of the kidney from external violence is not of frequent occurrence.

Among the diseases resulting from a constitutional cause is scrofulous disease of the kidney, which occurs in the form of small scattered deposits of tubercular matter, or it presents itself in the form of a thick curdy deposit, which leads to the formation of a large abscess.

Cancer of the kidney is a disease less uncommon than it was formerly supposed to be. In the great majority of cases some of the neighboring parts are complicated, in one or other of which the disease obviously originated.

Hydatids are occasionally found in the kidney. They are generally

numerous or multiplied, and contained in a mother-cyst, which frequently acquires a large size, forming a tumor, which may be often felt externally. (See HYDATID.)

Inflammation of the kidneys is fully treated in the article NEPHRITIS, which see. (See also KIDNEY, BRIGHT'S DISEASE, URINE.)

KIDNEY LIVERLEAF. (See HEPATICA AMERICANA.)

KING'S CURE. (See CHIMAPHILA UMBELLATA.)

KING'S EVIL, *kingz e'-vil*, a name for scrofula, which originated in the superstition that the disease was cured by the touch of a king. The practice is said to have originated with Edward the Confessor; it is, perhaps, needless to add that it has become obsolete. (See SCROFULA.)

KINO, *ki'-no*, the juice of the *Pterocarpus Marsupium*, a lofty tree of Hindostan. It is a pure astringent and used in the same cases as catechu. Dose: of the powder, 10 to 30 grains; the tincture, $\frac{1}{2}$ to 2 teaspoonfuls. The compound powder, containing 1 grain of opium in 20 of the powder, is a valuable preparation in diarrhœa. The dose of the compound is from 5 to 20 grains.

KNEE, *ne'* [Lat. *genu*]. The knee is, perhaps, the most important joint in the body, and is certainly the most serious to be affected either by disease or injury: it is formed of three bones, the lower extremity of the thigh bone, the upper extremity of the larger leg bone, and the knee-cap, or patella, which lies on the fore part of the joint. The small bone of the leg does not enter into the construction of the joint. The rounded ends of the thigh-bone rest in shallow excavations in the expanded broad head of the bone of the leg, the knee-cap protects the joint in front, and enables the muscles of the thigh to act with more advantage and greater leverage in the movements of the leg; the entire joint being fitted and bound together by means of cartilages and ligaments. (See LIGAMENT.)

The *knee-joint* is liable to become the seat of inflammation, either acute or chronic, caused either by violence or wounds, or as the result of constitutional causes. In any case, the disease is of so serious a nature, that it should as soon as possible be put under proper medical care.

If the *knee-joint* has been opened into by a wound, the only course for an unprofessional person to pursue in the absence of a surgeon, is to close it as quickly and effectually as possible (see WOUNDS), to put the joint in a state of the most perfect rest, to keep it cool with cold water applications, the sufferer being put on low diet, and the bowels attended to.

When *inflammation of the knee-joint* arises, either as a consequence of wound, or from any other cause, very free leeching is requisite, along with fomentations and poultices, and the constitutional treatment of inflammation generally. Blisters near the joint should never be used in an early stage.

White swelling of the knee, so dreaded popularly, consists of increased effusion of fluid into the joint consequent upon disease of some portion of its structure; this, however, and other chronic diseases of the knee, require so much educated skill and care, that they must be treated by the medical man; till his aid is procured, the most perfect rest of the limb, the suppression of extra heat by cooling applications, the soothing of pain by warm fomentation or poultice, attention to the state of the bowels and to the diet, is all that should be attempted. White swelling is often connected with a weakened and scrofulous state of the constitution, consequently all debilitating measures are, generally, to be avoided. The knee is sometimes the seat of a very unpleasant affection, termed loose cartilage, which consists of a rounded gristle-like body lying loose within the joint, and which being apt in the motions to be squeezed between the surface of the bones, causes severe sickening pain, and may occasion the person to fall. The surgeon must be applied to. (See WHITE SWELLING.)

The kneepan, from its exposed situation in front of the joint, is liable to various accidents, to fracture, also to dislocation, being pushed to one side; it may be replaced, either by the knee being bent by a second individual, or by straightening the knee, and bending the thigh upon the body, so as to relax the muscles on the fore part of the thigh, within the tendons of which the knee-cap is situated.

Housemaid's knee.—On the fore part of the knee-cap, between it and the skin, is placed a small "bursa" which is liable to become inflamed in persons who have to kneel much on hard substances. The affection is called "housemaid's knee," from its frequent occurrence in that class of servants, who kneel a good deal. Matter is liable to form in consequence of the inflammation, and in this case the treatment of abscess generally is requisite. If the disease be taken early, the knee should be rested, and the inflammation subdued by a few leeches and fomentations, etc.; a blister will frequently remove the swelling, or it may be painted over with tincture of iodine, once daily, for some time. Occasionally it remains in spite of treatment, and ultimately disappears of itself. When acute, red, and painful, especially if accompanied by a tendency to erysipelas, medical advice should at once be sought, as it will then probably require active treatment to subdue the inflammation. (See LEG, DISLOCATIONS, JOINTS, PATELLA OR KNEE-PAN.)

KNEE-JOINT, DISLOCATION OF. (See DISLOCATIONS.)

KNEE-PAN, FRACTURE OF. (See PATELLA.)

KNOT-GRASS. (See COLLINSONIA CANADENSIS.)

KOUMISS, OR KUMISH. (See KUMISS.)

KOUSSO, OR CUSSO, *kous'-so*, is the product of a plant brought from Abyssinia, and certainly appears to be a most efficient cure for tape-worm. In two cases—which had resisted all previous treatment—the author found the koussou perfectly successful. At the same time, it is not improbable, if the root of the male fern, found so abundantly in this country, was employed with the same precautions as the African remedy, that it would prove equally efficacious. The koussou should be taken in the morning fasting. The only preparation necessary is that all solid food should be abstained from for twenty-four hours before taking it; and a dose of castor-oil, or a saline purgative, administered the previous evening. About half an ounce of the flowers should be infused in a glass of warm water, and taken thus, flowers and water together, on an empty stomach. In three or four hours, if the remedy has not operated, a dose of castor-oil, or a saline purgative, should be administered. (See BRAYERA, ASPIDIUM, WORMS, ETC.)

KRAMERIA TRIANDRA, *kra-me'-re-a tri-an'-dra*, a tree belonging to the Nat. order *Polygalaceæ*. It is a native of Southern and Central America, and the root is the part used in Medicine, and is commonly known as *Rhatany*. In medicine it is used as an astringent and tonic, and has been found well adapted for use in profuse menstruation, chronic diarrhœa, the whites, and incontinence of urine. Locally it may be used with benefit in bleeding from the nose, from the cavity of an extracted tooth, or the surface of a wound, and to spongy or bleeding gums. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 5 to 20 grains; of the infusion, 1 to 4 fluid ounces. (See INFUSION.)

KREASOTE, OR CREASOTE. (See CREASOTE.)

KUMISS, *ku'-mis*. Kumiss, koumiss, or kumish, is a vinous liquor made in Tartary, by fermenting either mares' or camels' milk. The drink sold in our towns and cities, under the above names, is an artificial preparation, purporting to possess the same properties as the real kumiss.

L.

LABARRAQUE'S DISINFECTING FLUID, *lab'-a-raks*, a solution of chlorinated soda, the disinfecting properties of which were discovered by Labarraque early in the present century. It is a clear alkaline fluid, with a slight odor of chlorine. In large doses it is an irritant poison; in doses of 20 or 30 drops diluted in water, it is used in malignant fevers, putrid sore throat, dysentery, carbuncle and gangrene.

Externally it is used to remove felon, check ulceration, and in the treatment of some cutaneous diseases, as scald-head and prurigo. When used this way it must be diluted with about ten times the quantity of water. In contagious diseases it may be sprinkled around the room of the sick as a disinfectant. (See DISINFECTANTS.)

LABOR, *la'-bur* [Lat. *labor*], in the usual sense of the word, as applied to hard work, may well form a subject for a few observations in a work like this, treating of the physiology of health and disease. We have this term from the Latin root *labo*, to fail, and we may define it as exertion of muscular strength, or bodily exertion up to the point of weariness, when the strength fails. Labor is undoubtedly healthful; it exercises the muscles, tends to the development of the physical powers, and promotes a healthy action in all parts of the frame. When God issued the fiat that man should earn his bread by the sweat of his brow, He beneficently, as well as wisely, ordained that, in thus laboring for a subsistence, he would be also conducing to such a vigorous state of bodily health as would best enable him to enjoy life; work, therefore, is good for all, and none should repine that they are called on to labor, but rather rejoice in the exercise of that physical strength with which they are gifted, in order that they may be useful to themselves and others. A life of idleness is a life of misery; the bodily and mental powers waste and decay if they be not exercised. Let us then labor cheerfully, remembering that by so doing we not only promote our own health, but also glorify God; for truly if it be done in the right spirit, *Laborare est orare*—work is worship—as the adage runs. (See EXERCISE, MENTAL EXERCISE, HEALTH, ETC.)

LABOR, OR CHILDBIRTH. (See CHILDBED, PARTURITION.)

LABORATORY, *lab'-or-a-to-re* [Lat. *laboratorium*, from *laboro*, to labor], a place properly fitted up for the performance of chemical operations. The fitting up of a laboratory is a matter demanding great knowledge and judgment, and must of course depend very much upon the nature and extent of the operations to be carried on.

LABRADOR TEA. (See LEDUM LATIFOLIUM.)

LACERATION. (See WOUNDS.)

LACHRYMAL, *lak'-re-mal* [Lat. *lacryma*, a tear], is a term applied to various organs in the neighborhood of the eye, and connected with the tears, as the lachrymal glands by which they are secreted, and the lachrymal duct by which they are conveyed away. (See EYE.)

LACING, TIGHT. (See CHEST, EDUCATION.)

LAC SULPHURIS, *lak sul'-fu-ris* [Lat., milk of sulphur]. Sulphur precipitated from solutions of alkaline persulphides by the addition of an acid, was formerly used in medicine under this name. (See SULPHUR.)

LACTATION, *lak-ta'-shun* [Lat. *lacto*, *lactatus*, to suckle; *lac*, *lactus*, milk], the secretion of milk. (See MILK, PREGNANCY, CHILDBED, ETC.)

LACTEALS. (See ABSORBENTS, DIGESTION.)

LACTIC ACID, *lak'-tik as'-id* [from Lat. *lac*, milk]. (2HO , $\text{C}_{12}\text{H}_{10}\text{O}_{10}$.) Lactic acid is produced by natural or artificial fermentation from milk and other animal matter containing lactose, or sugar of milk. In its pure state it forms a transparent, inodorous, uncrystallizable, syrupy liquid, with a sharp acid taste. It is soluble in water, alcohol and ether, and may be distilled unchanged if air be excluded. Lactic acid enters into the composition of the gastric juice, the perspiration, and, in cases of diabetes, of the saliva and the urine. It is of considerable use in various kinds of dyspepsia, in doses of $\frac{1}{2}$ to 1 teaspoonful with syrup, before meals.

LACTINE, LACTOSE, *lak'-tin*, *lak'-tose*, sugar of milk. (See SACHARUM LACTIS.)

LACTUCARIUM. (See LACTUCA SATIVA.)

LACTUCA SATIVA, *lak-tu'-ka sa-ti'-va*, or garden lettuce, a vegetable belonging to the Nat. order *Compositæ*. The milky juice which flows from the stem when cut, is the part used in medicine. When dried it is called *lactucarium*. It is given as a substitute for opium, in checking diarrhœa, and allaying pain. Unlike opium, it produces no constipation nor excitement of the brain. Dose: of the fluid extract, $\frac{1}{2}$ to 2 teaspoonfuls; lactucarium, 5 to 20 grains; syrup, $\frac{1}{2}$ to 2 fluid ounces.

LADIES' SLIPPER. (See CYPRIPEDIUM PUBESCENS.)

LAKE FEVER. (See REMITTENT FEVER.)

LAKE WATER. (See WATER.)

LAMB, *lam* [Ang.Sax.], like other young meats, is not so desirable for invalids as mutton. (See FOOD.)

LAME BACK. (See LUMBAGO; SPINE, DISEASES AND INJURIES OF THE.)

LAMENESS. (See ANKLE, DEFORMITY, HIP-JOINT DISEASE, KNEE, ETC.)

LANCET, *lan'-set* [Fr. *lancette*], a sharp-pointed two-edged surgical instrument, used in venesection, and in opening tumors, abscesses, etc.

LANGUOR. (See DEBILITY.)

LAPPA MINOR, *lap'-pa mi'-nur*, or burdock, a common plant found growing abundantly all over the United States and Canada. The root, which is the part used in medicine, is aperient, diaphoretic, and sudorific. It has been found useful in scurvy, scrofula, gout, and affections of the kidneys. An ointment made of burdock has been used successfully in cutaneous diseases and old ulcers. Dose: of the fluid

extract, 1 teaspoonful; solid extract, 5 to 20 grains; infusion, 1 to 2 fluid ounces, three or four times daily. (See INFUSION.)

LARCH, AMERICAN. (See LARIX AMERICANA.)

LARD, *lard* [Fr. *lard*; Lat. *lardum*], the fat of swine after being melted and separated from the flesh. The prepared lard of the Pharmacopœia (*adeps præparatus*) is made from the internal fat of the abdomen of the pig, perfectly fresh and removing as much of the membranes as possible.

Lard is used as principal component of various ointments, but is often injurious, in consequence of being slightly rancid, in which case, instead of soothing, it has an extremely irritating effect upon abraded or blistered surfaces especially. Even when applied fresh, if allowed to remain too long unchanged, it will become a source of irritation. (See OINTMENTS, AXUNGE.)

LARIX AMERICANA, *la'-riks a-mer-e-ka'-na*, or American larch, commonly known as black larch, hackmetack and tamarac. It belongs to the Nat. order *Pinaceæ*. The bark is the part used. It is tonic, laxative, diuretic and alterative, and is recommended in obstructions of the liver, jaundice and cutaneous diseases. The dose of the decoction is 2 fluid ounces, three or four times a day. (See DECOCTION.) A tincture is prepared from the leaves, which is useful in bleeding from the lungs, diarrhœa, dysentery and profuse menstrual discharge. The dose is from 20 to 60 drops, three times a day.

LARKSPUR. (See DELPHINIUM.)

LARYNGISMUS STRIDULUS. (See CROUP, FALSE.)

LARYNGITIS, OR INFLAMMATION OF THE LARYNX, *lar-in-ji'-tis* [Fr. *laryngite*], may be either acute or chronic in its nature.

Acute inflammation of the larynx is a comparatively rare, but exceedingly fatal, form of disease, and medical aid must always be secured at the earliest possible moment.

Causes.—This disease may be the result of mechanical injury, or of some morbid condition of the blood: thus, it may be due to swallowing hot water, mineral acids, and the fumes of ammonia, or to injury done by the careless introduction of the tube of the stomach pump. It sometimes arises from exposure to cold, and at others the inflammatory action extends from the tonsils. General Washington died of this disease, caused by snow lodging about the neck during a snow-storm. It frequently comes on in the course of the exanthemata, or contagious diseases, as erysipelas, measles, small-pox and scarlet fever.

Symptoms.—It is characterized by a high degree of fever; the pulse is frequent and hard, and the patient manifests a considerable degree of restlessness and anxiety; he likewise complains of sore throat; and

among the earliest symptoms that bespeak danger, is difficulty of swallowing, for which no adequate cause is visible in the fauces; and to this is presently added difficulty of breathing. The act of inspiration is protracted with wheezing, and the patient points to the *pomum Adami* (Adam's apple) as the seat of the disease. He speaks either hoarsely, or, what is more common, all power of audible voice in the larynx is lost, and he speaks only by means of his lips and tongue in a whisper. As the disorder advances, the patient's general distress increases. His countenance, from being flushed, becomes pale or livid; his looks anxious and ghastly; he struggles for breath, and if he does not obtain timely relief, dies of strangulation. Its course is generally rapid, terminating fatally within the fifth day, and even in some cases, within twelve hours.

Treatment.—If the disease be due to cold, place the patient in a hot bath, and let him rest in bed in a room, steadily maintained at a temperature of 65°. He may inhale steam, and the air of the sick chamber should be moistened by diffusing steam through it. His feelings will be much relieved by the application of a hot sponge to his throat, and the following medicine must be regularly persevered in:

Take of Ipecacuanha wine or syrup.....Thirty drops.

Mix with a little water, and give a draught thus prepared every half hour till the patient vomits.

Blood may be locally abstracted by cupping or the application of a few leeches to the neck. A blister is sometimes of great service, but, if applied, it must be to the upper part of the sternum, or chest, rather than on the front of the throat. The bowels should be promptly moved by an efficient cathartic. The diet must consist of strong beef-tea and mutton broth, and as soon as the powers of the patient begin to flag, stimulants must be promptly administered, such as the following:

Take of Carbonate of ammonia.....Half a dram.

Pure water.....Eight ounces.—*Mix.*

Take an eighth part every two or three hours. In the absence of the above, other stimulants must be resorted to.

When the patient seems to have but little chance of relief from the above line of treatment, the aid of the surgeon should be sought, who will, if he deem it expedient, perform an operation, technically called *tracheotomy*, which, if done early, will afford good hopes of success; for the obstruction being high up above the windpipe, an artificial opening is made below it, and air rushes in through this newly-made entrance to the lungs, and affords instant relief to the sufferer.

Chronic inflammation of the larynx is most frequently seen in consumptive patients. During the long, weary course of pulmonary con-

sumption, the larynx often becomes thickened, inflamed, and ulcerated, causing the voice to be thick and hoarse, and, in some instances, to disappear altogether. This form of disease is not very amenable to treatment, but relief may frequently be given by applying to the affected organ, with a camel's hair brush, the following solution:

Take of Nitrate of silver.....Twenty grains.

Pure water.....One ounce.—*Mix.*

It may be more conveniently applied with the atomizer. (See CROUP, CONSUMPTION, LARYNX, ATOMIZER, ETC.)

LARYNGOSCOPE, *lar-in'-go-sko-pe* [Gr. *larynx* and *sko-peo*, I examine], is an instrument lately brought into use by, means of which the condition of the larynx may be ascertained. It consists of a small flat mirror, with a long stem, which, being previously warmed to prevent the breath from condensing upon it, is introduced into the mouth; while at the same time a stream of light is thrown upon the throat by means of a reflector.

LARYNX, *lar'-ringks* [Lat.], the organ of voice situated at the top of the windpipe. (See LUNGS, THROAT, APHONIA, ETC.)

LATERAL CURVATURE OF THE SPINE. (See SPINE, DISEASES AND INJURIES OF THE.)

LAUDANUM, *law'-dq-num* or *lod'-q-num*, tincture of opium. Dose: 25 to 30 drops. (See OPIUM.)

LAUGHING GAS, OR NITROUS OXIDE, *läf'-ing gas*, a name sometimes applied to protoxide of nitrogen, from its effects upon the human subject. A few deep inspirations are usually succeeded by a pleasing state of excitement, and a strong propensity to laughter, which soon subsides, without being followed by languor or oppression. Its effects, however, vary with different constitutions. In a word, its use is most dangerous for persons who have anything the matter with the brain, lungs, or heart. (See NITROGEN, ANÆSTHETICS, ETC.)

LAUGHTER, *läf'-ter*, which arises from an excited condition of the nervous system, though proverbial as a promoter of health, may nevertheless, if excessive and prolonged, give rise to serious consequences; the fit of laughter might pass into one of the convulsions in a predisposed constitution;* or in a child. The practice of tickling children, and thus keeping them in a state of laughter for some time, is strongly to be condemned, and may be attended with some mischief. (See CONVULSIONS.)

LAUREL. (See KALMIA LATIFOLIA.)

LAVANDULA, *lav-an'-du-la* [Lat.], or lavender, a genus of the Nat. order *Labiatae*. The flowering heads of *L. vera*, the well known lavender, yield by distillation with water English oil of lavender, which is largely employed in perfumery; and also in medicine, as a stimulant,

stomachic, and carminative. It is colorless or pale yellow, with the odor of lavender; and a hot, bitter, aromatic taste. The spirit of lavender is made by mixing 1 fluid ounce of the oil with 49 fluid ounces of the rectified spirit. Dose: $\frac{1}{2}$ to 1 teaspoonful. The compound spirits of lavender is a delightful aromatic compound, stimulant, cordial and stomachic. It is extensively employed as an adjuvant of many medicines, and as a medicine to relieve gastric uneasiness, nausea, flatulence, and languor or faintness. It is a favorite remedy with hysterical and hypochondriacal persons. Dose, 30 to 60 drops.

LAVENDER. (See LAVANDULA.)

LAXATIVE, *laks'-a-tiv* [Lat. from *laxo*, I loosen], a term applied to such medicines as are gently purgative. (See CATHARTICS, MINERAL WATERS, APERIENT.)

LEAD, *led* [Ang.-Sax.], symbol Pb. [Lat. *plumbum*], equivalent 103.57, specific gravity 11.44, is one of the most important of the metals, both itself and its compounds being applied to many useful purposes. It occurs in nature in combination with a large number of substances; but its most valuable ore is galena, or sulphide of lead, found in large quantities in various parts of the world. Lead is a bluish-white metal, so soft that it may be marked with the nail. It may be beaten into pretty thin sheets, as well as drawn into wire; but its malleability and tenacity are both low.

The uses of lead are very numerous; its compounds are well known, and its alloys are numerous and important. The salts of lead are mostly colorless. This metal is of importance in a medical point of view, both on account of its medicinal and of its poisonous properties.

Of its various medicinal preparations, it will be sufficient here to notice three: The acetate, or sugar of lead; the solution of an acetate of lead, or Goulard's extract; and the lead plaster.

The acetate or sugar of lead is used both externally and internally. In the former case, in the proportion of from 1 to 5 or 6 grains to the ounce of distilled or rain water, it forms one of the best cooling lotions; it may also be used slightly warm, either simply, or with the addition of 1 or 2 drams of laudanum to the half pint. The weaker solutions of sugar of lead, 1 or 2 grains to the ounce, are often used as an eye-wash, but are not so generally useful as zinc. Internally, sugar of lead acts powerfully as an astringent, and may be given in doses of from 2 to 4 grains once in eight hours, in cases of emergency, by the unprofessional. It is generally made into pill with crumb of bread; often $\frac{1}{4}$ grain of opium is combined with it, and it is advisable to wash the dose down with a draught of weak vinegar and water. The few cases, in which, in the

absence of all medical assistance, sugar of lead may be given domestically, are particularly noted when treated of in this work.

The solution of lead (liquor plumbi) is used in the proportion of about 1 dram to the $\frac{1}{2}$ pint lotion. It ought to be known that symptoms of lead-poisoning have been developed in consequence of the continued use of lead lotions to ulcerated surfaces.

Lead plaster is the most unirritating form of plaster we possess, and is preferable to diachylon on irritable skins; it is also the best in abrasions and bed-sores. Lead, when conveyed into the system in minute doses for any length of time, occasions serious constitutional effects, the most remarkable being palsy, and obstinate constipation, with colic. Persons such as painters, type-founders, etc., who work with lead or its preparations, are peculiarly liable to be thus affected by it. Another very fertile source, however, of the introduction of lead into the system in individual minute doses, but ultimately, by the accumulation of these, in poisonous quantity, is from the pipes in which water is conveyed for household purposes.

Lead poisoning.—The common use of lead or its preparations, in the arts, either legitimately or fraudulently, is not an unfrequent cause of disagreeable, sometimes of fatal attacks, in consequence of the metal finding its way into the body. The use of lead as a glaze to earthenware vessels may prove a source of great injury, being liable to be dissolved off, especially when the vessels are new, either by fatty or acid matters. Confectionery is sometimes colored with the yellow chromate of lead, or with Turner's yellow or chloride of lead; or whitened by the most poisonous preparation of all, the carbonate of lead. Wine, when sour, has been sweetened by the use of litharge, or oxide of lead, and in consequence of this fraud, a fatal epidemic colic at one time prevailed in Paris. Wine is also sometimes accidentally impregnated with lead, in consequence of shot, which had been used to clean bottles, having been left in them. Poisoning has occurred from this cause. Symptoms of colic have been brought on in persons living much in a room newly painted with lead colors. The white glazed cards are made so by means of lead, and might injure children, who are apt to suck them at times if they come in their way. Many of the hair dyes contain lead, and have caused injury.

When the causes of lead poisoning act slowly, from the smallness of the quantity taken in at once, the symptoms are generally those described under COLIC; but when the dose is large, it quickly brings on painful colic, vomiting, and extreme depression. In such cases, the best measures to be pursued until medical assistance can be procured, would be the administration of vinegar in the first place, and, in six or eight

minutes after, an emetic of $\frac{1}{2}$ a dram of sulphate of zinc, or some other sulphate, such as Epsom salts or Glauber salts, in quantity proportionate to the lead swallowed. The vinegar in the first place converts the lead into one of its least poisonous salts, and the one most easily decomposed by the sulphates.

The accumulation of lead poison in the system is in many cases denoted by the existence of a bluish line along the margin of the gums, at their junction with the teeth, and is a sign which should always be looked for when any suspicion exists. (See ARTIZANS AND THEIR DISEASES, COLIC, COSTIVENESS, PARALYSIS, ETC.)

LEAD COLIC. (See COLIC, LEAD.)

LEAD PLASTER. (See PLASTERS, LEAD.)

LEAD POISONING. (See COLIC, LEAD.)

LEAD PUMPS. (See PUMPS, LEAD.)

LEATHERWOOD. (See DIRCA PALUSTRIS.)

LEDUM LATIFOLIUM, *le'-dum lat-e-fo'-le-um*, or Labrador tea, an evergreen shrub belonging to the Nat. order *Ericaceæ*. It is a native of the northern parts of the United States and of Canada. The leaves, which are the parts used in medicine, are expectorant and tonic, and in the form of infusion, have been found beneficial in irritation of the pulmonary membranes and in dyspepsia. The dose of the infusion is from 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

LEECH, *leetch* [Lat. *hirudo*, from *haurio*, I draw], a genus of red-blooded worms, which have an oblong body, with a sucker at one end and a mouth at the other. In the mouth there are small jaws, tongues, or plaits of skin, by which they are enabled to extract the blood of other animals, which forms their principal nourishment. Leeches derive their chief interest from their use as a remedial agent. Leeches vary in the quantity of blood which they can abstract, from one dram to half an ounce; from one to two drams is the average. When forcibly pulled away whilst sucking, the leech is very apt to leave the teeth, or plaits of the skin in the wound, giving rise to pain and inflammation of the part; the leech is also rendered incapable of biting again. One of the most certain methods of making leeches bite is to cleanse the skin thoroughly; and the leeches should be exposed to the air for a short time previous to their application, as by this means they will bite more eagerly. They may be applied to the part by holding them lightly in the fingers, if they are voracious; or they may be placed in a cup or glass which should be inverted over the part from which the blood is to be drawn. A leech should not be disturbed whilst sucking, but should be permitted to fall off. (See BLEEDING.)

LEEK. (See ALLIUM.)

LEG, *leg* [Du. *læg*], is commonly applied to the whole of the lower limb from the hip to the ankle, but properly it is confined to that portion which extends from the knee to the ankle, the upper portion being the thigh. The leg proper is formed of two bones, the tibia and fibula. The former of these is the larger, and articulates above with the thigh-bone, presenting for that purpose two articulating surfaces, an external and internal, known as the condyles of the tibia, and separated from each other by a large bony prominence termed the spine, and two rough surfaces, one in front the other behind the spine. On the outer side of the tibia is a projection marked inferiorly by a smooth surface for articulation with the upper extremity of the fibula. The body or shaft of the tibia is large and triangular above, but becomes smaller and more circular towards the inferior or tarsal extremity, where it expands and assumes a quadrilateral form. Internally it descends farther than in any other direction, forming a projection termed the internal malleolus; externally is a rough triangular surface which gives lodgement to the fibula and attachment to the ligaments which connect these bones together. It articulates below with the astragalus. The superior extremity, or head of the fibula, is round and irregular, and presents on its inner side, a smooth cartilaginous surface for articulation with the tibia. The tarsal extremity is large, and more prominent than the superior, and forms a large irregular projection of a triangular shape, termed the external malleolus. It articulates with the astragalus. (See DISLOCATIONS, FRACTURES, THIGH, KNEE, ANKLE, FOOT, ETC.)

LEG, MILK. (See MILK-LEG.)

LEMON, *lem-un* [Fr. *limon*, Low Lat. *limonium*], the fruit of the lemon tree (*Citrus limonum*) is extensively cultivated in the South of Europe, and especially in Sicily, where the fruit forms an important article of commerce. The lemon is a variety of the citron, and belongs to the family *Aurantiaceæ*. Lemon-juice (*limonis succus*) is obtained by subjecting the ripe fruit freed of its rind and seeds to pressure. It is a slightly turbid yellowish liquor, possessing a sharp acid taste and grateful odor. The lemon is a sick-room luxury; lemonade being a refreshing drink in febrile and inflammatory complaints.

Until lately, the chief direct medical use of lemon-juice was in the treatment of scurvy (see SCURVY) but recently, it has been introduced as a remedy in rheumatic fever, and there are many testimonies to its value in this painful, and often tedious affection. Lemon-juice is not only a curative medicine in scurvy, but it is also a preventive; and it should, therefore, form part of the "sea-store" of all who are going a long sea-voyage. The juice may be procured at a moderate price from confectioners. The best method of preparing it for keeping, is to add about

one-tenth of spirits of wine, to separate, by straining, the jelly-like matter which coagulates in consequence, and then bottle for use. "Salt of lemon," which is sold for removing the stains of ink or iron, is no preparation of lemon at all, but is a salt of oxalic acid: the name might lead to serious mistakes.

The best lemons are smooth on the skin, and have a thin rind; if packed in newly-slaked lime in closed vessels, lemons may be preserved good for a considerable time. Oil of lemons is the oil expressed or distilled from the fresh lemon-peel, and is imported chiefly from Sicily. It has a pale yellow color, agreeable odor, and warm and bitter taste. Syrup of lemons is made by heating to the boiling point 1 pint of lemon-juice strained, and then putting it into a covered vessel with 2 ounces of fresh lemon-peel till cold; then filter and add $2\frac{1}{2}$ lbs. of refined sugar, and dissolve with a gentle heat. Dose, 1 teaspoonful. To form the tincture, macerate for seven days in a closed vessel $2\frac{1}{2}$ oz. fresh lemon-peel, sliced thin, with 1 pint of proof spirit. Dose: $\frac{1}{2}$ to 2 teaspoonfuls. (See CITRUS, CITRIC ACID, LEMONADE.)

LEMONADE, *lem-un-ade'* [Fr. *limonade*], is a drink prepared of water, sugar, and the juice of lemons. It may be made by macerating 2 lemons sliced, and 2 ounces of sugar in 1 pint of boiling water till cool, and then straining. There are different modes of making this delicious and healthful beverage. (See LEMON.)

LENITIVES, *len'-e-tivz* [Lat. *lenis*, gentle], are purgatives which act in a gentle manner, and have a soothing effect (See APERIENT, CATHARTICS, MINERAL WATERS.)

LENS, CRYSTALLINE. (See EYE.)

LEONURUS CARDIACA, *le-o-nu'-rus kar-de-a'-ka*, or motherwort, a perennial plant belonging to the Nat order *Lamiaceæ*. It grows throughout the northern parts of this country. It is emmenagogue, nerve, antispasmodic and laxative, and is very useful in nervous complaints, suppressed menstruation, and in chronic diseases attended with restless disturbed sleep, spinal irritation and neuralgic pains. Dose: of fluid extract, 2 teaspoonfuls made into a warm infusion with hot water, three or four times daily. (See INFUSION.)

LEOPARDBANE. (See ARNICA.)

LEPRA, OR LEPROSY, *le'-pra*, *lep'-ro-se* [Gr. *lepra*, scalliness], is a disease characterized by the formation of scaly patches on the skin, of different sizes, but having always nearly a circular form. Physicians distinguish three varieties of this disease—*lepra vulgaris*, or common leprosy; *lepra alphas*, or white leprosy; and *lepra nigricans*, or black leprosy.

Causes.—This disease sometimes makes its appearance without any

apparent cause, sometimes it may be induced by exposure to cold or damp, and sometimes it is evidently hereditary.

Symptoms.—Leprosy first manifests itself in small distinct reddish elevations of the cuticle, which enlarge till they sometimes attain the size of a crown piece. They are covered with scales, which accumulate and form a thick prominent crust, and are quickly reproduced as they fall off. This disease usually makes its appearance first above the knee or elbow, and extends by degrees along the extremities, till sometimes the whole body becomes affected by it. Its progress is, in general, very slow, and it may continue in the same state for years. The general health of the patient is but little disturbed by this disease. In lepra alphas the scaly patches are smaller than in lepra vulgaris, and have also their central parts depressed or indented. The lepra nigricans differs from the others chiefly in the color of the patches, which are dark and livid.

Treatment.—It is generally tedious of cure. The diet should be light and moderate, and all heating and stimulating liquors avoided. Externally, warm baths, sulphur baths, and preparations of tar or creasote, are useful. The constitutional treatment will depend upon the condition of the body; if weakly, tonics, as quinine and iron, are to be administered. Several obstinate cases are said to have been cured by administering 10 drops of sulphuric acid three times a day in $\frac{1}{2}$ a pint of water, and bathing the part with a solution of $\frac{1}{2}$ a dram of the acid in a pint of water. A solution of arsenic is often of advantage; but it can only be safely used under medical superintendence. (See ARSENIC.) This disease appears to have been much more prevalent, and of a severer type, in ancient than in modern times, if indeed this is the same disease, many being of opinion that the leprosy of ancient times resembled rather what is now known as elephantiasis. (See SKIN, DISEASES OF THE; ELEPHANTIASIS.)

LEPTANDRA VIRGINICA, *lep-tan'-dra vir-gin'-e-ka*, or leptandra, a perennial plant belonging to the Nat. order *Scrophulariaceæ*. It grows from two to five feet high and is commonly known as Culver's physic, Culver's root, blackroot, and tall speedwell. The root, which is the part used in medicine, is tonic, cholagogue and laxative, and is employed in affections of the liver, in bilious and typhoid fevers, and in dyspepsia, diarrhœa and dysentery. It contains a peculiar resin called *Leptandrin*. The following powder has been found very useful in the treatment of diarrhœa and dysentery.

Take of Leptandra root in powder.....	One dram.
Opium in powder.....	Half a dram.
Capsicum in powder.....	Half a dram.— <i>Mix.</i>

Give from 1 to 3 grains every four hours until the disease yields.

Dose: of fluid extract, $\frac{1}{2}$ to 1 dram; leptandrin, $\frac{1}{4}$ to 2 grains; powdered root, 20 to 60 grains.

LESION, *lé zhun* [Lat. *lædo*, I hurt], is a term used to denote any kind of wound or bodily injury.

LETHARGY, *leth'-ar-je* [Gr. *lethe*, forgetfulness; *argia*, inactivity], an unnatural tendency to sleep, is closely connected, as to cause, with langour and debility, and approaches apoplexy in character. It may arise from the opposite causes of over-fulness of blood, or from deficiency of circulation in the brain, from nervous exhaustion of that organ, or from actual disease in it, such as tumor, or abscess. The lethargic state may also arise from an impure or poisoned state of the circulating fluid, such as precedes an attack of bilious cholera, or diarrhœa, or is a consequence of suppression of urine. It may also, of course, be the consequence of narcotic drugs, or of alcoholic intoxication. These latter contingencies should be kept in mind in the event of lethargy coming on suddenly; in such a case, the treatment, with precautions recommended under the article APOPLEXY, should be adopted, modified, of course, in some degree on account of the milder character of the disorder. In the aged especially, lethargy is always to be regarded with suspicion; but in any case, the cause should be investigated by a medical man as soon as may be. (See APOPLEXY, BILIARY DISORDERS, DEBILITY, ETC.)

LETTUCE, *let'-tis* [Lat. *lactuca*, from *lac*, *lactis*, milk, on account of the milky sap which flows when the plants are cut.]

As an article of diet, lettuce is in very general use, and with most persons, agrees well, though some find that it, in common with uncooked vegetables generally, disorders digestion; others find its narcotic properties, even in its mildest condition, inconvenient. Lettuce eaten at night has been had recourse to successfully, among others, by the celebrated anatomist Galen, as an antidote to sleeplessness. For medicinal preparations of lettuce, see LACTUCA SATIVA.

LEUCOMA, *lu-ko'-ma* [Gr. *leukos*, white], is applied to a white opacity of the cornea of the eye. It is occasioned by acute inflammation, causing a deposition of lymph either upon the surface or into the substance of the cornea. When merely superficial, it often passes away with the cessation of the inflammation, but when deep-seated it is frequently incurable. Astringent lotions are generally recommended.

LEUCORRHŒA. (See WHITES.)

LEVATOR, *le-va'-tur* [Lat. *levo*, I raise], a name given to certain muscles which are employed in lifting the part to which they are attached, as the *levator anguli oris* which raises the angle of the mouth.

LEVIGATION, *lev-e-ga'-shun* [Lat. *levigo*, I rub or grind fine], the process of rubbing down or pounding minerals into a paste with water.

LIATRIS SPICATA, *li-a'-tris spi-ka'-ta*, or button snake root, known also by the common name of gayfeather, is a perennial plant belonging to the Nat. order *Compositæ*. It is found in dry woods and sandy fields from New England to Wisconsin. The roots are stimulant, tonic, diaphoretic, diuretic and emmenagogue. It has been found efficacious in gonorrhœa, gleet, and diseases of the kidneys, also in gravel and dropsy. It forms an excellent gargle in sore throat, and is useful also in suppression of the menses and in scrofula. In the Southern States it has been held to be an antidote to the poison of venomous snakes. Dose: of the fluid extract, 1 to 4 teaspoonfuls; infusion, 1 to 2 fluid ounces. (See INFUSION.)

LICE. (See ACARUS.)

LICHEN, *li'-ken* or *litsh'-en* [Gr. *leichen*], a peculiar skin disease, characterized by the presence of small *papulæ* or pimples on an inflamed surface. It is one of the numerous phases of eczema, being the papular, as impetigo is the pustular, form of that disease. (See ECZEMA; SKIN DISEASES OF THE.)

LICHENS, *li'-kenz* or *litsh'-enz* [Gr. *leichen*]. Lichens are distributed over all parts of the world, and form a considerable proportion of the vegetation of the polar regions and of mountain tops. Many species possess nutritive properties, from containing starchy matter, such being also emollient and demulcent. Others contain bitter principles, which render them tonic and astringent. None are known to be poisonous. The most important one of the family is the *cetraria islandica*, or Iceland moss. (See CETRARIA.)

LICORICE, OR LIQUORICE. (See GLYCYRRHIZA GLABRA.)

LIFE, *life* [Ang.-Sax. *lif*]. The word, here, is simply taken in its one sense of man's actual material existence in the world; all persons of healthy mind have an instinctive desire to preserve life—instinctive, truly, it may be called at the present day; for the feeling with a large—a very large—class, seems to rise no higher. The only care seems to be, to protect from immediate, urgent, threatened danger. And life is yearly, daily, hourly extinguished in this country, by causes which are perfectly under man's own control to prevent—by causes which it is utterly unworthy of intelligent and responsible beings should continue, or be allowed to continue, in operation against them. It is enough confirmation to reiterate the fact that one-third of the children die before they reach the age of five years. They languish and die in the unwholesome dwellings of city, town, village, and country. And this need not be; for, fearful as the loss of life now is, it is less, considerably, than it was fifty, even twenty years ago, and might be much lessened still. The whole science of medicine, surgery, the efforts of hygiene or sanitary

precaution, even the object of such a work as the present, is the preservation and prolongation of human life; and that it is not preserved nor prolonged to a much greater extent than it now is, cannot be for want of knowledge, at least among the better classes.

The preservation and prolongation of life can never be simply a selfish consideration; man does not live for himself alone. But if none can doubt that the duration and value of life might be extended far beyond what it now is, it is equally certain that it is much greater than it was formerly.

Ignorance of the laws of health, in the first instance, and obstacles to the carrying out of those laws in the next, have hitherto kept the average of life far below the average it ought to hold. Probably, too, indifference as to the means of prolonging human life has partly arisen from the very common error, which supposes that the evil of premature deaths has some compensating advantage in removing a portion of surplus population; whereas, in the general case, it is not the surplus, but the valuable portion of life that is thus lost. If a boy dies at some period between ten and sixteen, his existence has been an absolute cost to the community, and he was but just approaching the period when he might have become a productive member of it. If a husband dies in the early years of his married life, he leaves as burdens on the world a widow or children, for whom, in the general case, if he had lived, he would have worked; "bearing out the fact that a country where life is precarious has to support more unproductive members than its neighbors."

It is a melancholy truth, resting on evidence only too strongly overwhelming, that the lives of the poorer classes, who inhabit the crowded districts of large cities, are liable to be shortened by a variety of causes. And yet these things need not be; there is no possible reason why the duration of life in a district in which it is low should not be greatly raised—the amount in some degree of course depending upon the nature of the district. Neither is there a reason why the standard should not be elevated in every district. That such will be the case at some future day there can be little doubt, nor is it unreasonable to suppose that there is yet a "good time coming," in which the value and duration of life will be extended greatly beyond what it is at present—greatly beyond perhaps what we at present can imagine—when science and benevolent exertion have corrected the errors and retained what is good of an advanced civilization; when sources of disease from without are removed, and when man has learned that health is better than great riches, and ceased to offer the former, either his own, or that of worn-down work-people, at the shrine of Mammon. (See LONGEVITY, HEALTH, MORTALITY, SANITARY SCIENCE, OCCUPATION, POVERTY.)

LIFE-EVERLASTING. (See GNAPHALIUM MARGARITACEUM.)

LIFE, EXPECTATION OF. (See MORTALITY.)

LIFE-INSURANCE, *life'-in-shu-ranse*, the security of a sum of money to the family or to the survivors of an individual whose death involves loss or diminution of income to those survivors, may become an important consideration, when the chances of death or recovery in severe illness are nearly balanced—when the tranquillity or disturbance of the mind may make that balance incline to the one or to the other side. The racking thought of a wife and family left without provision, may drive away the sleep that would precede amendment—may give the last jar to the sinking nervous system. In this remedial point of view only can this important subject be alluded to here. (See MORTALITY.)

LIFE-ROOT. (See SENECIO AUREUS.)

LIFTING CHILDREN, *lift'-ing*, is a subject on which a few words are highly requisite. It is really surprising to see in what a cruel and dangerous manner children are often lifted about, not only by their nurses, but by their mothers; and the evil results are very commonly brought before medical men in the shape of sprains, dislocations, and even fractures. When a heavy child is perhaps seized by the hand or arm, and swung over a gutter, or the like, the wonder is, not when the injury results, but that it does not always result from the practice. Among boys, and even by those who are old enough to know better, there is a trick of lifting children or boys, by the hands placed under the chin and at the back of the head; this is most dangerous—dislocation of the neck, and instant death has been the result. (See CHILDREN.)

LIFTING CURE. (See MOVEMENT CURE.)

LIGAMENT, *lig'-a-ment* [Lat. *ligamentum*], is a strong elastic membrane connecting the extremities of movable bones. Ligaments are divided into capsular and connective, the former being so called from surrounding the joints like a cap.

In their ordinary condition, the ligaments are not very sensitive; but when, in consequence of a strain of the joint, or sprain, they are over-stretched, they become acutely so.

LIGATURE, *lig'-a-ture* [Lat. *ligatura*], is applied to anything used in binding any part of the body. More particularly it is applied to the thread or silk used in the tying of arteries or veins that have been cut. The effects of a ligature is to divide the middle and internal coats, leaving the external and cellular coat whole, and thus the closing up of the canal is promoted by the adhesion of the cut edges of the internal coats. Hence the ligature should be small and round, not broad or flat, and should be tied with some degree of tightness.

LIGHT, *lite* [Lat. *lux*], the great agent by which our organs of vision

are enabled to see, and take cognizance of the beauties and wonders of creation.

A ray of light is an exceedingly small portion of light as it comes from a luminous body. A medium is a body which affords a passage for the rays of light. A beam of light is a body of parallel rays.

A pencil of rays is a body of diverging or converging rays. Converging rays are rays which tend to a common point. Diverging rays are rays which come from a point and continue to separate as they proceed. The radiant point is the point from which diverging rays proceed. The focus is the point to which converging rays are directed.

Light is of two kinds : natural light, proceeding from the sun and stars; and artificial light, proceeding from bodies which are strongly heated. The glowing or shining appearance is called incandescence.

Light is a powerful nervous stimulant, and our physical organization is largely indebted to it, for the proper development of those powers and proportions which go to constitute a vigorous and healthful existence. It is now a recognized fact, that a free supply of light is almost as necessary to health as fresh air or pure water; a fact which should never be lost sight of in the construction of dwelling-houses. Nothing is more favorable to the development of scrofula than a dark dwelling. The powerful stimulant action of light upon the eye is evinced by the fact, that strangers in the arctic regions are liable to suffer from inflammation of that organ, produced by the glare of reflected light from the snow, and that from the same cause the natives of those regions suffer from snow blindness. Light, however, exerts different effects according to its color; bright white, yellow, or red lights, are much more likely to injure the eye than those of a blue or green tinge.

There are some affections of the brain and nervous system, and of the eyes, in which the patient requires a very subdued light, and sometimes its almost entire exclusion from the apartment, but it is a well-known fact, corroborated by abundant testimony, that convalescence takes place much more rapidly in a room large, airy, cheerful, and with plenty of sunlight. The question of the artificial lighting of our streets and dwellings is a very important one, both to municipal corporations and to householders, and in the matter of providing a safe, steady, and at the same time inexpensive artificial light, there is yet great room for improvement. (See HOUSES, AMAUROSIS, EYE; EYE, DISEASES OF THE; BLINDNESS, SLEEP, ETC.)

LIGHTNING, *lite'-ning* [Ang.-Sax. *lihting*, *lihtincg*, *lihtung*.] Injury or death from lightning, appears principally inflicted through affection of the nervous system; although at the same time, severe and extensive wounds are not unfrequently produced. Burning, on the other

hand, is not occasioned by the electric fluid itself, so much as by the clothing, which is generally set on fire. Persons who are stunned, but not killed, by lightning, generally remain in a state of insensibility for some time, the breathing being slow and deep, the muscular system relaxed. In such cases, it will be proper to use means for preserving the animal warmth, which has a tendency to become depressed, to keep up artificial respiration, as recommended under article DROWNING, to use mustard plasters to the spine and pit of the stomach, to administer from time to time, a little sal-volatile in water, if the patient can swallow—if not, to give a warm injection containing $\frac{1}{2}$ an ounce of turpentine—or to use such other means as are recommended under the articles DROWNING, CARBONIC ACID, and CHOKE-DAMP, which may seem adapted to the case. It is a common idea, that persons who have been killed by lightning do not stiffen, and that the blood remains fluid: it is erroneous.

Lightning rods.—A house supplied with the proper kind of lightning rods—namely, those possessing all the requisites shown to be necessary by a scientific knowledge of the laws of electrical action—may be considered as completely protected from the calamitous effects of the discharges of lightning. The rod should consist of *round* iron not less than three-fourths of an inch in thickness. Iron is named because cheap, easily procured, and a sufficiently good conductor. A rod of this size is in no danger of being melted by a discharge from a cloud. The rod should be round, from the fact that electricity repels itself, and possesses a tendency to escape into neighboring bodies from points or sharp edges; therefore flat or twisted rods must be imperfect conductors, as they have a tendency to give off lateral sparks from the sharp edges, during the passage through the rod, of the discharge, and which may in many cases ignite combustible materials.

The rod should terminate above in a single point, and to preserve this and prevent it from being melted, it should be encased in a hollow cone of platinum. The lower end of the rod should be connected with the earth in the most perfect manner, and if possible, should be extended out from the house, under the ground, to a distance of fifty feet or more, and then sunk perpendicularly till it reaches moist earth. A still better way is to let the end of the rod terminate below the surface of the water in a well, but never in a cistern, for in the latter the water is insulated from the earth.

It is always better that a lightning rod should be made of one piece of iron rather than of several sections joined together at the ends. The rod may be attached to the house by means of iron eyes driven into the wall; the extreme end or point of these being buried in non-conducting masonry or wood, will not tend to give off electricity at the time of a discharge.

Glass cylinders may be inserted in these eyes for the purpose of insulation, but this can be of but little importance, since the insulation is immediately destroyed by the rain.

The above observations relating to lightning rods, are deductions made from the writings of the late Prof. Joseph Henry, the Secretary of the Smithsonian Institute, Washington, D. C., and late President of the National Academy of Sciences.

It would, considering how often the fact is reiterated, seem almost superfluous to point out the ordinary precautions which those who chance to be exposed to a storm of thunder and lightning, ought to adopt; but not a summer passes without lives being lost from sheer ignorance. Harvest laborers and others will persist in sheltering under trees, people will continue to put up, even iron, umbrellas in the midst of a thunder-storm, and mowers walk unconcernedly home with their scythes over their shoulders. If an individual is overtaken by a thunder-storm in a place where trees abound, he should avoid them as much as possible; a thorough soaking will be rather a protection than otherwise. If, on the contrary, the position is on a wide plain, where the body is the highest object, lying down is the safest procedure. In any case, metallic objects, such as sickles, scythes, etc., being laid aside at a considerable distance. Under shelter, the most hazardous position appears to be in a draught or current of air, such as between a door and window, this seeming to exert considerable influence upon the course of the electric fluid. A position in the middle of the room—if not in a draught nor near a stove—and a horizontal rather than a perpendicular one, are advisable.

LIGHTNING RODS. (See LIGHTNING.)

LIGNUM VITÆ. (See GUAIACUM.)

LIGUSTICUM LEVISTICUM, *le-gus'-te-kum le-vis'-te-kum* or lovage. A plant belonging to the Nat. order *Umbelliferae*, and growing in the south of Europe. It is a stimulant aromatic, and has been employed as a carminative and diaphoretic. The root, stem, leaves, and seeds have all been employed in medicine. The root and seeds are the most esteemed. The extract of the root acts upon the urinary organs, increasing the flow of urine, and is sometimes efficacious in bringing away gravel. The medicinal qualities of lovage have made the drug available in removing visceral obstructions, dispelling flatulency, increasing perspiration, and in the treatment of jaundice. It is often added to purgative preparations, on account of its aromatic carminative properties. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

LILY. (See NYMPHÆA ODORATA.)

LIME. (See CALCIUM.)

LIME, BURNS FROM, *lime* [Ang.-Sax. *lime*]. Burns from lime are not uncommon; in such cases, the best application is vinegar and water, or some other acid, if vinegar is not at hand—freely applied; the acid in this case converting the caustic lime into a harmless substance. The same treatment is to be pursued in the event of lime getting into the eye, the vinegar or acid being of course more largely diluted than when used to other parts. In any of these cases, the after consequences such as ulceration of the skin, or inflammation of the eye, must be treated as recommended in burns generally.

LIME IN THE EYE. (See LIME, BURNS FROM.)

LIME-WATER. Take a handful of quicklime, slake it, and put it into a quart bottle full of soft water. Shake the bottle well, and then allow the undissolved portion of the lime to settle. Pour off the clear liquid when needed, replacing it with more water, and afterwards shaking the bottle briskly. For medicinal uses of lime-water, see CALCIUM.

LINIMENT, *lin'-e-ment* [Lat. *lino*, I anoint], is an oily substance of a consistence intermediate between an ointment and oil, but so thin as to drop, and used to rub upon diseased parts. The term is also applied to a spirituous, or other stimulating application used in the same way.

The following are examples of a few useful liniments:

CAMPHORATED LINIMENT.

Take of Gum camphor.....One ounce.
Olive-oil.....Four ounces.—*Mix.*

Useful in strains and bruises where there is no abrasion of the skin.

LIME AND OIL LINIMENT.

Take of Lime-water.....Two ounces.
Olive-oil.....Two ounces.—*Mix.*

Shake well together. Useful in burns, chapped hands and bruises.

ACONITE AND CHLOROFORM LINIMENT.

Take of Castor-oil.....Two drams.
Chloroform.....Two drams.
Water of ammonia.....Two drams.
Tincture of aconite root.....Two drams.
Camphorated tincture of soap.....One ounce.—*Mix.*

Useful in rheumatic and neuralgic pains.

AMMONIA LINIMENT.

Take of Solution of Ammonia.....One ounce.
Olive-oil.....Two ounces.—*Mix.*

Used in sore throats, sprains and bruises.

ANODYNE LINIMENT.

Take of Castile soap.....	Six ounces.
Opium	One and a half ounce.
Camphor.....	Three ounces.
Oil of rosemary.....	Half an ounce.
Alcohol.....	Two pints.

Steep the soap and opium in the alcohol for three days; filter and add the oil and camphor. This is a very useful liniment in sprains and rheumatic and neuralgic pains.

LINSEED, *lin'-seed*, the seed of the *linum usitatissimum*, or common flax, contains a fixed oil, well known by its name of linseed-oil, which is procured from the seeds by pressure; the seeds also yield, when boiled, or infused in boiling water, a thick, almost tasteless, mucilage. Linseed-oil was formerly more employed in medicine than it is at present, its chief use now, being in the formation of the carron-oil, used by some in the treatment of burns. This is made by agitating together equal parts of lime-water and linseed-oil. (See BURNS.) The infusion of linseed, or linseed tea, may be made in the proportion of half an ounce of the seed to a pint of boiling water. It is a cheap and very good demulcent remedy in coughs, and in irritation of the urinary organs. The meal of linseed is made by grinding the seeds, after the oil has been expressed from them; it is chiefly used for poultices.

Linseed poultice is made by mixing 4 ounces of the meal gradually with 10 fluid ounces of boiling water, and adding $\frac{1}{2}$ fluid ounce of olive-oil with constant stirring. This forms one of the best and most convenient of all emollient poultices. (See POULTICE.)

LINSEED TEA. (See COOKERY FOR THE SICK.)

LINT, *lint* [Lat. *linum*, flax], a term applied to old white linen cloth, scraped by hand or machinery, so as to render it soft and woolly. It is used for dressing wounds, ulcers, etc., either alone, or smeared with suitable ointment or cerate.

LION'S FOOT. (See NABALUS ALBUS.)

LIP, *lip* [Ang.-Sax. *lippa*, Lat. *labium* or *labrum*], in Anatomy, is the outer edge or border of the mouth. The lips are composed of muscular fibres, glands, and cellular tissue, covered by mucous membrane. They owe their extremely red color to the thinness of the covering membrane, and their sensitiveness to an abundant supply of minute nervous fibres.

The color of the lips is closely connected with that of the blood, and also depends upon the vigor of its circulation. When the blood is poor and deficient in red globules (see CHLOROSIS) the lips become pale; when, again, from failure of the heart's action, as in fainting, the blood is not circulated properly, the lips also become pale; when, from disease,

the blood does not undergo its proper changes, the color of the lips, instead of being red, inclines more or less to purple. The lips, particularly the lower, are apt to become the seat of cancer in old people; especially, it is said, in those who have smoked much from a short pipe. A continued sore upon the lip that will not heal, in an old person, should be examined by a medical man; if it is such as to require removal, this cannot be done too soon.

Good health alone can impart to the lips their peculiar beauty; and the appearance of the lips, especially of the under lip, is generally considered as a strong index of the state of the health. Cold cutting winds will often make the lips rough and uncomfortable. A little warm milk and water is the best and safest remedy for this, if the lips are not badly chapped. In this latter case, however, it may be necessary to apply to some of the emollient lip-salves, of which we have here given recipes. Delicate ladies, who value the appearance of their lips, will never use water either very cold or very hot. Tepid soft water is far more likely to keep the lips comfortable than any other; but, as we said before, everything depends upon the state of the health. (See LIP-SALVE, HARE-LIP, SKIN, CANCER.)

LIP-SALVE, *lip'-säv*. Ingredients: 1 ounce of oil of sweet almonds, $\frac{1}{4}$ ounce of white wax, $\frac{1}{2}$ ounce of spermaceti, 4 or 5 drops of oil of roses, and 4 grains of cochineal. Mode: Warm these before the fire till well mixed; then leave them to cool.

Another—*White and Red*.—1. *White*—Spermaceti ointment or cerate, $1\frac{1}{2}$ ounce; finely powdered white sugar, $\frac{1}{2}$ ounce; scent, a sufficient quantity. Mix.—2. *Red*—Spermaceti ointment, 1 ounce; alkanet root, $\frac{3}{4}$ dram. Melt together till sufficiently colored; strain, and when considerably cooled, add 2 or three drops of oil of lavender. (See LIP.)

LIQUIDAMBAR, *lik'-wid-am'-bar*, a genus of balsamiferous trees, constituting the Nat. order *Altingiaceæ*, or *Balsamifluæ*. *L. orientale* yields the liquid storax of the drug-stores, obtained from the inner bark, and is the *cortex thymiamatis*, or storax bark, of pharmacologists. Prepared storax is purified by means of rectified spirit, and straining. It is stimulant and expectorant, and is recommended in chronic bronchitis, catarrh, gonorrhœa, etc. Dose, 10 to 20 grains twice a day.

LIQUOR AMMONIA. (See AMMONIA.)

LIQUOR AMMONIA ACETATIS, OR SPIRIT OF MINDERERUS. (See AMMONIA.)

LIQUORICE. (See GLYCYRRHIZA GLABRA.)

LIQUOR POTASSÆ. (See POTASII.)

LIQUOR POTASSÆ, POISONING BY. (See ALKALIES, POISONING BY.)

LIQUORS. (See ALCOHOL, ALE, PORTER, BRANDY, GIN, RUM, WHISKEY, WINE; STIMULANTS, ALCOHOLIC; ETC.)

LIRIODENDRON TULIPIFERA, *lir-e-o-den'-dron tu-le-pif'-e-ri*, or white wood, a large American tree, commonly known as American poplar and cypress tree. The bark is aromatic, stimulant and tonic, and has been used successfully in intermittent fever, chronic rheumatism, hectic fever, night sweats and the diarrhœa attending consumption. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces. (See INFUSION.)

LISPING, *lisp'-ing* [Ang.-Sax. *wlips*, *wlisp*]. A species of psellismus, or defective enunciation; sometimes caused by an unusual length of tongue; sometimes by the loss of the front teeth, but often by affectation. (See SPEECH.)

LITHARGE, *lith'-arj* [Gr. *lithros*, a stone, and *argyros*, silver], is an oxide of lead, which occurs in the form of reddish white scales. It is sometimes used to adulterate wine. Litharge ointment has been used in small-pox to prevent pitting. It is not superior to common lard. (See LEAD.)

LITHIA. (See LEITHIUM.)

LITHIASIS, *le-thi'-a-sis* [Gr. *lithos*, a stone], is the disease of the stone in the bladder or kidney. (See CALCULUS.) Also a disease of the eyelids, in which their margins are beset with small hard tumors.

LITHIUM, *lith'-e-um*, in Chemistry, symbol Li, equivalent, 6.5; specific gravity, 0.59—one of the alkaline group of metals, of which potassium, sodium, cæsium, and rubidium are the other members. It closely resembles these metals in most of its properties, forming an alkali by its union with oxygen, decomposing water at ordinary temperatures, and having so low a specific gravity that it will float in the lightest known fluid. Lithium is the metallic base of lithia, one of the best remedies for gout; either as lithia water, which may be had in the form of aerated carbonate or effervescing citrate, in doses of from 5 to 10 fluid ounces; as the carbonate of lithia, dose 3 to 6 grains; or the citrate of lithia, dose 5 to 10 grains. Lithia is also recommended for stone. Its action on the uric concretions is much more rapid than that of the salts of potassium and sodium.

LITHONTRIPTIC. *lith-on-trip'-tik* [Gr. *lithos*, a stone, and *tribo*, I wear away], a term used to denote certain medicines which are believed to have the power of dissolving calculi in the bladder. The Vichy water, a solution of bicarbonate of soda saturated with carbonic acid, is said to have considerable effect, not only on lithic calculi, which it dissolves by virtue of its alkali, but on the phosphatic, which it affects

through its carbonic acid, and disintegrates the animal matter which cement them together. (See CALCULUS, URINE.)

LITHOTOMY, *le-thot'-o-me* [Gr. *lithos*, a stone, and *temno*, I cut], is the operation of cutting into the bladder, in order to extract one or more stones or calculi from it. Several methods have been recommended of extracting the stone; but there are only two of them that can be adopted with any propriety: one of these is called the high operation, from being performed immediately above the pubes. There are, however, several objections to this mode of operation; and it is now rarely adopted, except for some special reason, as where there is disease of the urethra. The other is called the lateral operation, on account of the prostrate gland and the neck of the bladder being cut laterally. In this case the incisions are made in the perinæum, and the neck and lateral part of the bladder laid open, so as to allow of the extraction of the stone. Where large, it is sometimes necessary to crush the stone, and take it away piecemeal; in every instance the cavity of the bladder ought to be examined with the finger, to ascertain that there is no other stone present. Where numerous, they may be removed with a scoop; and if broken down, tepid water should be injected, so as to remove every portion of the calcareous matter, and prevent a nucleus remaining for the formation of a future stone. The after treatment is simple: the wound is left open, or only covered with some simple ointment, and in a dependent position, that the urine may flow freely through it. The patient is to be kept quiet, and on a low regimen, and diluent drinks administered, and any symptoms of inflammation are to be met by prompt antiphlogistic treatment. In the course of two or three days the urine begins to flow by the urethra, and is soon wholly discharged in that way. (See LITHOTRITY, CALCULUS, URINE.)

LITHOTRITY, *le-thot'-re-te* [Gr. *lithos*, a stone, and *terio*, I break into pieces], is the operation of breaking into pieces a calculus in the bladder by means of instruments passed into that organ through the urethra, so that the fragments may be discharged through the latter, and thus the performance of the operation of lithotomy rendered unnecessary. This is one of the greatest triumphs of modern surgery, and its introduction has taken place since the commencement of the present century. The operation is so simple, attended with so little danger, and productive of so little pain, as to render it, where it can be used, immeasurably preferable to lithotomy. When the calculi are very large or very hard, it cannot be adopted. (See LITHOTOMY, CALCULUS, URINE.)

LITMUS, *lit'-mus* [Ger. *lackmus*], a blue coloring matter obtained from the *Rocella tinctoria*, and moistened with a solution of carbonate of potash. It is much used by chemists as a rough test for the presence

of free acid or alkali in a solution or gaseous mixture. It is generally used in the form of litmus-paper, which is prepared in the following manner: Common commercial litmus is digested in water until a deep blue solution is formed; it is then filtered, and pieces of bibulous paper are dipped into it, and dried. Blue litmus-paper is burnt red by acids. Reddened by being suspended for a few seconds over the fumes of acetic acid, it serves as a test for alkalies, which restore it to its original color.

LIVER, *liv'-ur* [Ang.-Sax. *lifer*, Gr. *hepar*], is the secreting organ or gland by which the bile is formed. It is situated in the right hypochondriac and epigastric regions below the diaphragm, and is of a reddish-brown color. Its form is irregular, being convex on the upper surface, irregularly concave below, very thick behind, and very thin in front; and in the adult it generally weighs from three to four pounds. It is divided into two principal lobes—the right and the left, the former of which is by much the larger. They are divided on the upper side by a broad ligament, and below by a considerable depression, or fossa. Between and below these two lobes is a smaller lobe, called *lobulus Spigelii*, which is bounded on the left by the fissure for the lodgement of the ductus venosus; on the right by the fissure for the vena cava. The *lobulus caudatus* is a tail-like process of the liver, stretching downwards from the middle of the right lobe to the lobulus Spigelii. The liver, like the other viscera of the abdomen, receives an investment from the lining membrane of that cavity—the peritoneum, which, being reflected from it at different points, forms broad bands, connecting it with the surrounding parts. An investment of areolar tissue is also spread over the organ, extending into the interior, and forming thin but dense sheets to the vessels and canals, called the capsule of Glisson. The proper tissue of the liver is composed of a great number of granular bodies, of the size of millet, and called lobules, of a foliated appearance. The blood-vessels of the liver are the hepatic artery and veins and the vena portæ; the lymphatics are numerous, and the nerves are supplied from the pneumogastric and phrenic, and the hepatic flexus. The liver thus receives two kinds of blood—arterial, by means of the hepatic artery, in small quantity, destined principally for the nourishment of the gland; and venous, by the vena portæ, in much larger quantity, from which the bile is principally formed. The tributary branches, by the junction of which the main trunk of the portal vein is formed, comprise the veins which receive the blood from the stomach and intestinal canal, the spleen, pancreas, and gall-bladder. The secretion of bile (see BILE), though the chief and most obvious of the functions of the liver, is not the only one which it has to perform; for

recent discoveries have shown that important changes are effected in certain constituents of the blood, in its transit through this gland, whereby they are rendered more fit for their subsequent purposes in the animal economy. From the labors of Bernard and others, it appears that the low form of albuminous matter conveyed from the alimentary canal by the portal vein requires to be submitted to the influence of the liver before it can be assimilated by the blood. The liver also possesses the remarkable property of forming sugar out of principles in the blood which contain no trace of saccharine or amylaceous matter. The excretory apparatus of the liver consists of the hepatic, common, and cystic ducts, and the gall-bladder. The biliary ducts commence by small twigs in each lobule, and join, forming, where they emerge from the gland, the hepatic duct. This duct, after passing down for a short distance, is joined at an angle by the cystic duct from the gall-bladder. The common duct thus formed is called the *ductus communis choledochus*, and empties itself into the duodenum. The retention of the materials of the bile in the blood acts like a poison upon the nervous system, and if the suspension of secretion is complete, death soon takes place. Much of the cerebral disturbances accompanying dyspepsia, some forms of which are popularly known as liver complaint, is doubtless due to deficiency of the biliary secretion, and the non-elimination of certain deleterious constituents. (See BILE, BILIARY DISORDERS, BILIOUSNESS, GALL-STONES, JAUNDICE, DIGESTION, DYSPEPSIA; HEPATITIS, OR INFLAMMATION OF THE LIVER.)

LIVER COMPLAINT. (See BILIARY DISORDERS, BILIOUSNESS, BILIOUS CHOLERA, COSTIVENESS, HEPATITIS, JAUNDICE, PODOPHYLLUM PELTATUM, MERCURY, CATHARTICS, ETC.)

LIVER LILY. (See IRIS VERSICOLOR.)

LIVERWORT, OR LIVER LEAF. (See HEPATICA AMERICANA.)

LIVING BY RULE. (See RULE, LIVING BY.)

LIXIVIATION, *liks-iv-e-a'-shun* [Fr. *lixiviation*], process of separating the soluble from the insoluble portions of compounds by steeping and washing in water. The extraction of the soluble salts contained in kelp is an example of lixiviation.

LOBE, *lobe* [low Lat. *lobus*], is a term applied to the more or less separate parts of which the glands of the body are composed. Thus we have the lobes of the brain, lungs, liver, etc. Lobe is also applied to the pendant portion of the ear. (See EAR.)

LOBELIA INFLATA, *lo-be'-le-a*, or lobelia, a common weed belonging to the Nat. order *Lobeliaceæ*, growing in waste fields, and by the roadsides throughout the United States and Canada. It is known by the common names of Indian tobacco, and asthma root. All parts of the

plant are used in medicine. Lobelia is an active emetic, and in small doses a diaphoretic and expectorant. It is of especial use in spasmodic asthma, and is used also in catarrh, croup, whooping cough and other affections of the air-passages and lungs. By its nauseating properties it is very efficacious in subduing spasm.

In regard to the caution which should be observed in administering lobelia, Dr. Waring remarks as follows: "It is always advisable to commence with small doses, and increase them as the patient is able to bear the medicine, discontinuing its use if it cause nausea, intermitting pulse, or great depression." Dose: of the fluid extract as an emetic, $\frac{1}{4}$ to 1 teaspoonful, as an expectorant, 10 to 60 drops; of the tincture, 1 to 2 teaspoonfuls; of the infusion, 1 fluid ounce every $\frac{1}{2}$ hour, until vomiting ensues.

LOBSTER, *lob'-stur* [Ang.-Sax. *loppestre*, *lopystre*, *hleapan*, to leap], like most shell-fish, is unfit for persons of weak digestion. (See FISH.)

LOCHIA, *lo-ki'-a* [Gr. *locheyo*, to bring forth], the "cleanings" after delivery. (See CHILD-BED, PARTURITION.)

LOCK-JAW, *lok'-jaw*, is the popular name for the first and partial symptom of a fearful spasmodic disease, known to medical men as tetanus.

Causes.—The most usual exciting causes of lock-jaw or tetanus, are wounds, especially of a punctured character, but in some persons, the very slightest injury is sufficient to develop the disease; in this climate, however, it is fortunately comparatively rare; in warm climates it is common; it is also liable to prevail among the wounded after battles, if exposed to much vicissitude of weather; indeed, cold will occasionally give rise to lock-jaw independent of injury. When lock-jaw arises from a wound, it shows itself in from four days to three weeks after the injury. It is a very fatal disease, the greater proportion of those affected by it dying; some, however, recover.

Symptoms.—Not only the muscles of the jaws, but the muscles of the body throughout, are, more or less, extensively thrown into violent spasm, so strong, indeed, that the teeth or bones may be broken by it. The set of muscles most generally affected, after those of the jaws, are those of the back; the patient, by the spasm, is bent like an arch, so that the back of the head and the heels alone touch the bed; occasionally the body is bent forward. The disease most frequently commences with a sensation of stiffness and soreness of the muscles of the neck and jaws; the latter become fixed, and the spasm extends more or less over the body. It is needless to add, that this extensive cramp is attended with the most severe pain, which is also in most cases experienced severely about the

pit of the stomach, being dependent, doubtless, on spasm of the diaphragm.

Treatment.—Of course, as soon as practicable, a medical man should be called to a case exhibiting even the slightest tendency to lock-jaw after an injury; in the meantime, large, very large doses of opium in the liquid forms of laudanum, or of sedative solution, may be administered, even by unprofessional persons; they may mitigate the sufferings of this dreadful disease; commencing with from 30 to 60 drops of laudanum; the same doses, if they can possibly be swallowed, may be repeated at intervals of from half an hour to an hour, as long as the system remains unaffected by the drug; if the medicine cannot be given by the mouth, it must be by injection.

In addition to the above, the affusion with cold water may relieve. The patient having been taken out of bed, and a quantity of cold water dashed over the body, and down the spine, is immediately to be rubbed dry and replaced in bed—quiet sleep may possibly follow. Whilst the jaws are firmly closed, nourishment cannot, of course, be given in the usual way; a medical man will probably administer it by means of a tube passed into the stomach, either by the nose, or by mouth, passing it behind the teeth; until his arrival, should that be delayed, the administration of small injections of meat broth will assist in maintaining strength. (See TETANUS, CONVULSIONS, CRAMP, SPASM, WOUNDS, ETC.)

LOCUST TREE. (See *ROBINIA PSEUDO-ACACIA*.)

LOGWOOD. (See *HÆMATOXYLON*.)

LOINS, *loinz* [Ang.-Sax. *lendenu*], is applied to the lower and posterior part of the trunk of the body, or the space between the upper edge of the pelvis and the last of the ribs. The lower end of the vertebral column is in this region, and the vertebræ composing it are termed the lumbar vertebræ.

LONGEVITY, *lon-jev'-e-te* [Lat. *longævitas*], the prolongation of life to a period much above seventy years. Prolonged life is, in some respects, hereditary; generally the ages at which the different members of a family die, bear a very near average to one another, even despite the influence of occupation, habits, and condition of life, although these, undoubtedly, exert considerable influence in determining the period at which the component tissues of one or more of the organs begin to give way.

There are quite a number of cases of extreme longevity on record in America as well as Europe. Henry Jenkins, of Yorkshire, England, is said to have lived to the extreme age of 169, while Joseph Crele, of French extraction, died in Wisconsin, 1866, at the age of 141. These

are extraordinary cases, but there seems no good reason why any one not tainted with the seeds of inherited disease, nor compelled by the force of circumstances to violate the necessary conditions, should not attain an age of from fourscore to one hundred years.

The inhabitants of the northern temperate zone, as a rule, attain a greater age than those of any other portion of the earth's surface. The white race is longer lived than any of the colored races, and the pure breeds than those which are the product of unseemly miscegenation.

Married people live longer than single, and, notwithstanding all the risks and cares incident to child-bearing, there are many more instances of longevity among females than among males. For obvious reasons, the wealthy live longer than the poor, and the professional and commercial classes longer than those who live by the sweat of their brow.

There are certain occupations which preclude the possibility of long life. Those who spend their working hours exposed to the fumes of arsenic and other poisonous metals, and those who are constantly breathing an atmosphere laden with irritating dust, as knife-grinders, of necessity, fill premature graves, though much may be done, even here, to alleviate the circumstances and to prolong life.

Diet, clothing, exercise, sleep, occupation, and place of residence are all matters more or less under individual control, and in the proper observance of the common sense rules laid down under the different articles on these subjects is to be found the true method of prolonging life, and of preventing the decrepitude which too often accompanies old age.

Signs of a long life.—Freedom from hereditary taint, a constitution uninjured by dissipation or disease, elasticity of both mind and body, which will enable the individual rapidly to recover the effects of injury or disappointment, a financial and social position which will exempt from undue exposure and bodily and mental worry, with regular and active habits, are a possession of priceless worth and valuable *signs* in the forecast of long life.

Many tables and calculations have been made at different times, with a view of determining the extent to which the duration of life is affected by the circumstances in which individuals may be placed. The following table, from Caspar, of Berlin, shows how greatly the average duration of life varies in different classes in Germany. Though this table may apply in the main to this country, still the American or English professional man reaches a much higher average age than indicated in the last four items of this table.

Of 100 persons in each of the following classes, there have reached the age of 70 years and upwards :

Theologians.....	42
Agriculturists.....	40
Superintendents.....	35
Manufacturers, merchants and commercial men generally....	35
Mechanics.....	35
Laborers.....	35
Military men.....	32
Subalterns.....	32
Advocates or lawyers.....	29
Artists.....	28
Teachers and professors.....	27
Physicians.....	24

Another table, by a different observer, exhibits the difference of locality as follows ; the observations were taken from a French department.

	Inhabitants to one death annually.
Mountain parishes.....	38.3
Sea-side.....	26.6
Corn or grain districts.....	24.6
Stagnant and marsh districts.....	20.8

(See HEALTH, DISEASE, SANITARY SCIENCE ; AGE, OLD ; CLIMACTERIC DISEASE, DIET, FOOD, MEALS, DIGESTION, EXERCISE, REGIMEN, EXCITANTS, MENTAL EXERCISE, RECREATION, HEALTH RESORTS, MINERAL WATERS, CLIMATE, PASSIONS ; STIMULANTS, ALCOHOLIC ; CLOTHING, FLANNEL, AIR, VENTILATION, HOUSES, LIGHT, BED-ROOM, SLEEP, EARLY RISING, ABLUTION, BATHS AND BATHING, TOILET, EDUCATION, OCCUPATION, POVERTY, LIFE, HEREDITARY TENDENCY, MARRIAGE, MORTALITY, ETC.)

LONGING, *long'-ing*, is the term applied to the almost morbid craving for certain articles of diet, with which some females indulge themselves during pregnancy ; it is probably a phase of hysteria. Under the circumstances, it is only right and humane to yield to those fancies in some measure ; but when there is any real or adequate reason for their being debarred, it may be insisted upon, without the risk of the consequences popularly supposed to follow. (See PREGNANCY.)

LONG LIFE. (See LONGEVITY.)

LONG PURPLES OF SHAKESPEARE. (See ARUM.)

LOOSENESS OF THE BOWELS. (See DIARRHŒA, ETC.)

LORDS-AND-LADIES. (See ARUM.)

LOSS OF BLOOD. (See HEMORRHAGE.)

LOSS OF FLESH. (See ATROPHY, EMACIATION.)

LOSS OF HAIR. (See BALDNESS, VASELINE.)

LOSS OF SIGHT. (See AMAUROSIS, BLINDNESS.)

LOSS OF VOICE. (See APHONIA.)

LOTIONS, *lo'-shunz* [Lat. *lotio*; *lavo*, *lotum*, to wash], are liquid applications, principally composed of water, used either to the skin or to the mucous surfaces, such as the inside of the mouth or of the nostrils. The variety of lotions from plain water—which is often a most excellent one—upwards, is very great. Lotions may be classed as—1. Cooling; 2. stimulating; 3. astringent; 4. soothing; and 5. sedative. Of the first, water is an example, either alone, combined with spirit, from $\frac{1}{2}$ an ounce to 1 ounce to the $\frac{1}{2}$ pint, or combined with vinegar. The lead lotion (see LEAD) is another example of the cooling lotion, but in this case it is astringent at the same time. Water, with one-third or one-half spirit of wine, applied to the skin by means of lint, which is covered to prevent evaporation, is a good example of a stimulating lotion. Very cold water, the lotion of sulphate of zinc or of white vitriol, in the proportion of from 1 to 10 grains to the ounce of water, and other astringents in solution, form the astringent lotions; the various preparations of opium; decoction of poppies; decoction of hemlock, etc., are soothing lotions: the prussic acid lotion, a sedative one.

The reader is referred to the various articles, such as LEAD, ZINC, etc.

LOUSE. (See ACARUS.)

LOVAGE. (See LIGUSTICUM LEVISTICUM.)

LOVE. (See PASSIONS.)

LOW DIET, *lo di'-et*, must necessarily be a comparative term, influenced by the previous habits of the patient, but generally it means the absence of all stimulants and animal food from the allowances—generally of eggs also—and a diminished amount of bread nourishment. Weak tea, bread, diluted milk, cocoa, gruel, arrowroot, sago, and such like preparations, generally, constitute the staple of low diet in this country; to these, however, the cooling fruits may frequently be added. Half diet includes the above with the addition of puddings, of milk and eggs, of broth, and it may be of a small allowance of meat. (See ABSTINENCE, HUNGER, STARVATION, FOOD, DIET, REGIMEN, ETC.)

LOWER JAW, DISLOCATIONS OF. (See DISLOCATIONS.)

LOWER JAW, FRACTURE OF. (See FRACTURES.)

LOW SPIRITS. (See HYPOCHONDRIASIS, NERVOUS DISEASES, MELANCHOLY, DYSPEPSIA.)

LOZENGE. (See TROCHE OR LOZENGE.)

LUMBAGO, *lum-ba'-go* [Low Lat.; Lat. *lumbi*, the loins], is rheumatism of the large muscles of the back, and like rheumatic affections generally, is often extremely painful, the pain being increased by stooping, and again when the person attempts to rise. This peculiar aggravation of the pain by these movements is generally stated to be the distinction between this disease and painful affections of the kidney. In

lumbago, nothing affords more, if so much relief, as hot moist applications to the back, continued from twelve to twenty-four hours at a time, and followed by the soap liniment combined with one-sixth part of turpentine, rubbed well into the back and loins.

Nothing is better than the old woman's plan of putting several folds of flannel over the back and applying a smoothing iron as hot as it can be borne—"Ironing the back."

Ten grains of Dover's powder, with a couple of grains of calomel, given at bed-time, and followed in the morning by a dose of castor-oil or infusion of senna, will expedite the cure. Whilst the person is confined to bed under the influence of the hot applications to the back, it will be advisable to give warm diluent drinks tolerably freely. In severe cases the safest plan is to have medical attendance, if possible. Should the urine be scanty or high-colored, 10 grains of carbonate of potassa, with a teaspoonful of sweet nitre, may be taken in a wine-glassful of water twice a day, with advantage. Persons liable to attacks of lumbago should wear a flannel belt round the loins. (See RHEUMATISM, CLOTHING, FLANNEL.)

LUMBAR, *lum'-bār* [Low Lat. *lumbaris*; Lat. *lumbi*, the loins], belonging to the loins. The term is frequently used in connection with abscess. In children of weak and scrofulous constitution, abscess in the loins, or "lumbar abscess," is apt to occur, and is often connected with disease of the vertebræ, or bones of the spine. Continued complaint of pain in the back, with any awkwardness in walking, particularly if accompanied with failure of the general health, should awaken suspicion, and give occasion for the child being examined by a surgeon. Lumbar abscess may occur in adults. (See ABSCESS.)

LUMBRICUS, *lum'-bre-kus* [Lat. for slippery], a worm. Applied to the large round worms which occur in the intestines. (See WORMS.)

LUNACY. (See INSANITY.)

LUNAR CAUSTIC, *lu'-nār kaws'-tik* [Lat. *luna*, the moon], a term applied to nitrate of silver, cast in sticks; and used by surgeons for cauterizing purposes. (See NITRATE OF SILVER.)

LUNATIC ASYLUMS. (See INSANE ASYLUMS.)

LUNCHEON, *lunsh'-un*, a kind of intermediate meal, and therefore sometimes an unnecessary one. Many laborers have lunch between breakfast, and dinner, and again between the latter meal and supper. Many of the commercial and professional classes, and people of leisure are apt to make luncheons a kind of dinner—a meal of animal food and stimulants, which, if superadded to dinner, is certainly unnecessary, and therefore productive of disorder. Either the luncheon should be made a *bona fide* dinner at an early hour, or it should be a meal without animal

food—provided, of course, that an additional amount of animal nutriment is not considered necessary by a medical man, as a remedial measure. Fruit is generally more wholesome at luncheon and as the first dish at breakfast, than in any other part of the day.

LUNGS, *lungz* [Ang.-Sax. *lunge*], the organs of respiration. The lungs are two, each occupying its own side of the chest, the left being rather the smallest, on account of the greater space being taken up by the heart on the left side. The latter organ is situated in the space between the two lungs, which are separated from one another by a middle partition. Air passes into the lungs by means of the windpipe, or trachea, to the top of which is fixed the larynx, or organ of voice; at its lower extremity, the trachea divides into two branches, or bronchi, of unequal length, one for each lung; these bronchi on entering the lung subdivide into branches, and these again into still smaller tubes, until after continued division and subdivision, they end in the air-cells. These air-cells are minute membraneous cavities, on the membraneous walls of which the blood circulates in a network of veins, in such a manner as to be brought into intimate contact with the air which is drawn into the lungs at each inspiration; nothing, indeed, intervening between the blood in the veins, and the air in the air-cells, but a membrane so thin that it allows the transpiration of the gases and vapor, which takes place as the blood becomes purified by means of this air contact. In consequence of their structure being adapted for the admission of air into numberless minute cells, the lungs feel spongy when pressed between the fingers. Those who are curious on the point, will learn more from five minutes' examination of the lungs and windpipe of a sheep or calf, in a butcher's shop, than from any description. In these, however, the mode of death, by bleeding, gives the lungs a much paler color than their natural one. The tubes, the air-cells, the blood-vessels, etc., of the lungs are held together by "cellular" tissue, and the entire organ is enveloped by a membrane—the "pleura"—which covers its surface, and is thence "reflected" to cover the inner surface of the ribs of the chest; in this way forming a shut pouch, or sac, the inner surfaces of which are in contact, and these being in the healthy state perfectly smooth, and moistened with a lubricating fluid, they glide over each other in every motion of the chest. The trachea, and the bronchi at first, are composed of incomplete "rings" of cartilage, connected together by an elastic tissue; the former tube—the windpipe—as generally known, occupying the fore part of the neck, and lying in front of the gullet.

The larynx or organ of voice, which is placed on the top of the windpipe, extends to the base of the tongue; its situation is often strongly marked in thin men, especially if somewhat advanced in life, when it

forms the prominence popularly called "Adam's apple." This prominence is caused by a cartilage which forms a main portion of the body, or box, of the larynx. Into the composition of this wonderful instrument of articulate and vocal sound, various other cartilages, ligaments, muscles, etc., enter, and the whole is lined by a continuation of the mucous membrane of the mouth, which after passing through the larynx, lines the trachea, or windpipe, and follows the branchings of the bronchi. The cavity of the larynx is divided by a constriction of a triangular form—the glottis—and is protected from injury by a heart-shaped cartilage—the epiglottis—which, especially in the act of swallowing, when the larynx is drawn upwards, completely closes the opening.

From the above slight sketch, the general reader may derive some idea of the important organs of respiration. To recapitulate: situated at the base of the tongue, and protected from injury by the cartilage of the epiglottis, is the larynx, constricted in the centre, and ending in the trachea, or windpipe, which, descending in front of the neck into the chest, divides into the right and left bronchi; these, entering their respective lungs, divide and subdivide, till the minute branches enter the air-cells, on the thin walls of which the blood circulates in a network of veins, and undergoes purification by absorption of the oxygen of the atmosphere, whilst it frees itself from carbonic acid and watery vapor.

The act of respiration is partly involuntary—that is, goes on, as during sleep, independent of any exercise of the will; it is, however, as all know, capable of being, to a certain extent, controlled by the will; this being, doubtless, a necessary adjunct to the power of the utterance of sound. The process of respiration is essentially effected by means which enlarge the capacity of the chest: these means are the various muscles attached to the ribs, and which by elevating them, increase the diameter of the chest from before backwards (see CHEST), and also the diaphragm and muscles of the abdomen, which, by their downward and outward motions, increase the capacity of the chest from below; the enlargement of the chest by these agencies, either in combined or separate action, has the effect of causing the air to rush in, or to be sucked into the chest, as it is into a pair of bellows. If the cavity was empty, it would rush into it; as it is, it rushes into the spongy distensible lungs and distends them, it may be assisted in some degree by the action of the lungs themselves. The air having been thus drawn into the chest by an active movement, is immediately thereafter expelled by a comparatively passive one; the active muscular movement ceasing, the ribs descend, and regain their position, by their own weight and elasticity. The movements, however, both of inspiration and expiration, may be increased—forced—by the will; and in this case, other muscles are

called into action, and those usually employed in the process are more strongly exerted. It is the necessity for these forced efforts in the asthmatic, which, after the frequent repetition, gives the peculiar curve of the shoulders so often observable. The average number of respirations in a minute varies from fifteen to twenty-two in different individuals, and even in the same at different times. The end of the process of respiration—that is, the change undergone by the blood, in consequence of its exposure to atmospheric air in the lungs—has been sufficiently entered into in articles AERATION, BLOOD, CIRCULATION OF THE BLOOD, RESPIRATION, ETC.; it is therefore unnecessary to repeat it here.

The passage of the air into and through the lungs, gives rise to certain definite sounds perceptible to the attentive ear applied closely to the outside of the chest. These sounds vary but slightly in healthy individuals; consequently, any deviation from them is indicative of disease, experience furnishing the link which enables the physician to pronounce upon the nature of the disorder, from the nature of the sound, or from its entire absence, which latter condition occurs, either when the lung is rendered so solid by diseased action, that air cannot penetrate its tissue, or when it is condensed—pressed together—by the presence of fluid within the chest. Moreover, it is evident, that organs like the lungs, which in their natural healthy state, are distended with air, must, when the side of the cavity within which they are contained is struck, give out a somewhat hollow sound; but that, should the lungs become solid, or the cavity more or less filled with water, the sound, instead of being hollow, will be dull or flat. It is further evident, that the power of conducting sound must be altered by the various alterations in the structure of the lungs, and that the voice must sound differently to the ear applied to the chest, according to these alterations. These brief observations will, perhaps, convey to the general reader, some idea of the means of judgment, and of the principles on which they depend, which the physician avails himself of when he goes through the—to the unprofessional—somewhat mysterious-looking process of physical examination of, or sounding the chest.

The narrowness of the triangular chink in the larynx, through which the air passes, always renders disease of this organ a matter of anxiety and of danger, for that small opening cannot be obstructed for three or four minutes, without death ensuing. For particular diseases of the lungs, see ASTHMA, CONSUMPTION, HEMORRHAGE; BRONCHITIS, ACUTE; BRONCHITIS, CHRONIC; PLEURISY, PNEUMONIA. See also CARBON, CARBONIC ACID, RESPIRATION.

LUNGS, BLEEDING FROM. (See HEMORRHAGE.)

LUNGWORT. (See PULMONARIA OFFICINALIS.)

LUPULIN. (See HUMULUS LUPULUS.)

LUPUS, *lu'-pus* [Lat. a wolf], is applied to a malignant disease of the skin, which eats away the parts attacked; and hence its comparison to a wolf. It commences usually in the form of indolent, soft, shining swellings or tubercles, which proceed slowly to ulceration, and eat into the parts, or it may heal in one part and spread in another. It commonly attacks the face, frequently destroying the alæ of the nose or the eyelids, and may spread over the entire face.

Treatment.—The treatment consists in strengthening the system by nutritious diet, tonics, as quinine and iron, cod-liver oil, and change of air. Besides this the disease is to be attacked locally by caustics. In the severer form the only cure lies in its thorough extirpation, and therefore the most active caustics should be chosen. This disease was formerly known as *noli me tangere* (touch me not).

LUXATION, *luks-a'-shun* [Lat. *luxatio*, from *luxo*, I put out of joint], is dislocation of a bone. (See DISLOCATIONS.)

LYCOPERDON, *li-ko-pur'-dun*, the puff-ball, a genus of *Fungi*. When the species *L. giganteum* is submitted to combustion, fumes arise which are powerfully narcotic. Lately, the vapor has been proposed as an anæsthetic agent instead of chloroform, and the dust is sometimes used as a domestic remedy to stop hemorrhages.

LYCOPUS VIRGINICUS, *li-ko'-pus vir-jin'-e-kus*, or bugle weed, a perennial plant belonging to the Nat. order *Lamiaceæ*. It grows in moist situations all over the United States. It is sedative, tonic, astringent and narcotic, and has been used successfully in incipient consumption, bleeding from the lungs, and other hemorrhages. It allays irritation, diminishes the frequency of the pulse, and lessens cough. It acts somewhat like digitalis in abating the velocity of the pulse, and is devoid of the dangerous effects resulting from the use of that drug. It is said to have cured diabetes when all other means were useless. Dose: of the powder, 1 to 2 drams; of the infusion, 2 to 4 fluid ounces; of the fluid extract, 1 to 2 teaspoonfuls.

LYE, OR LEY, *li, lē* [Ang.-Sax. *leah, læg*], is a term applied to the solution of an alkali in water. The term is generally applied to the fluid procured by pouring water on fresh wood ashes. Children, by mistake sometimes drink of this fluid, causing all the signs of irritant poisoning. The best treatment is vinegar and water, 1 part to 8, mucilaginous drinks, such as flaxseed tea, slippery elm tea, or mucilage made from the gum acacia, and stimulants, if symptoms of prostration prevail. (See ALKALIS, POISONING BY.)

LYMPH, *limf* [Lat. *lymphæ*, water], is a thin, transparent, colorless fluid, which is found in the lymphatic or absorbent vessels abundantly

distributed over the body. (See LYMPHATICS.) Its taste is saline, and it has a faint, scarcely perceptible smell. When examined by the microscope, it is seen to consist of a clear liquid, with corpuscles floating in it, which agree entirely with the pale corpuscles of the blood.

LYMPHATICS. (See ABSORBENTS.)

M.

MACARONI. (See COOKERY FOR THE SICK.)

MACE. (See MYRISTICA.)

MACERATION, *mas-er-a'-shun* [Lat. *macero*, I soften with water], is the infusion of substances in cold liquids. The term is usually employed with regard to vegetable substances, when they are reduced to powder and exposed to the action of water, or any other liquid, without the assistance of heat, in which last respect it differs from digestion. The operation is usually continued from twelve or twenty-four hours to seven days,

MADDER. (See RUBIA TINCTORUM.)

MAD DOGS, BITES OF. (See BITES AND STINGS.)

MAD-DOG WEED. (See ALISMA PLANTAGO.)

MADEIRA, CLIMATE OF, *ma-de'-ra*. This island is, in the equability of its temperature, one of the most desirable places known for the consumptive, where the necessary comforts can be procured. Both the summer and winter are mild, and it is therefore fitted for the permanent residence of the patient. (See CONSUMPTION; CANARIES, CLIMATE OF THE.)

MADEIRA WINE, is one of the strong dry wines, and contains from twenty to twenty-two per cent of spirit. It generally contains more acid than either port or sherry.

MADNESS. (See INSANITY.)

MAD WEED. (See SCUTELLARIA LATERIFLORA.)

MAGNESIA, *mag-ne'-zhe-a* [Fr. *magnésie*], one of a group of alkaline earths, of which baryta, strontia, and lime form the other members. It is the oxide of the metal magnesium, and is generally prepared by calcining the carbonate at a high heat, until it glows with a peculiar luminous appearance, called brightening. It is a white powder, varying in density according to the source from which it is obtained. It is unalterable by heat, and has never been fused. It slowly absorbs carbonic acid and water from the air; moistened with water, it combines with it, raising the temperature during the union, and giving rise to *hydrate of*

magnesia. It is sparingly soluble in water, forming a solution exhibiting an alkaline reaction. It is used as an antacid and cathartic in doses of from 10 to 60 grains. There are three carbonates of magnesia—the *bicarbonate*, *monocarbonate*, and *subcarbonate*. The *subcarbonate* is a bulky white powder, known as *light carbonate* of magnesia. The *bicarbonate*, or *heavy carbonate*, is much less bulky than the preceding. Both forms are extensively used in medicine as a cathartic and antacid, in doses of from 10 to 60 grains. The solution of carbonate of magnesia, or *fluid magnesia*, is formed by mixing 2 ounces of sulphate of magnesia, and $2\frac{1}{2}$ ounces of carbonate of soda with a sufficiency of distilled water, by a complicated process which it is unnecessary to detail. Dose, $\frac{1}{2}$ to 2 fluid ounces. The *citrate of magnesia* is much used in pharmacy as a gentle aperient. It is prepared by mixing powdered carbonate of magnesia and citric acid into a paste with a small quantity of water, and granulating. A teaspoonful in water forms a pleasant effervescing cathartic of a gentle character. The *sulphate of magnesia* occurs in nature as *hair salt*, an efflorescence on certain magnesian minerals. It exists in sea-water and certain spring waters in considerable quantity. The springs of Epsom are famous for the amount of this salt which they contain. The *sulphate of magnesia*, or Epsom salts, so extensively used in medicine as a cathartic, is prepared in several ways, the most common of which is to dissolve dolomite, or magnesian limestone (carbonate of lime and magnesia) in dilute sulphuric acid, by which means sulphate of lime is precipitated, and the sulphate of magnesia may be obtained by evaporating to crystallization. Its other sources are the mother-liquor of sea-salt, and refuse alum-liquors. It is very soluble in water, 100 parts of water dissolving 68 parts of the salt at ordinary temperatures, and 160 parts at boiling point. Dose, 60 grains to $\frac{1}{2}$ an ounce.

The *principal use of magnesia* is as an antacid in acidity of the stomach and bowels, it at the same time—provided it meets with acid—acts as a gentle aperient; it is often combined with rhubarb, Epsom salts, etc. The effectual manner in which magnesia neutralizes acid in the stomach, and thereby relieves heart-burn and other uneasy sensations, has probably been the reason for its extensive use, and certainly for its abuse among dyspeptics generally, whereby much evil has resulted; for there is no question that the continued use of magnesia as an antacid, greatly impairs the digestive powers; moreover, if used in the form of calcined magnesia, or of carbonate, should it not encounter sufficient acid in the alimentary canal, to convert it into a soluble aperient salt, it is apt to accumulate, and, if taken regularly and largely, to collect into and form concretions in the bowels; on this account, persons who will take magnesia habitually, ought to be careful to clear out the bowels thoroughly,

at intervals, by means of a dose of castor-oil; the same rule being observed with regard to children, if magnesia is given regularly to them. These remarks do not apply to the comparatively pleasant and efficient preparation of the bicarbonate, or fluid magnesia, or to the granulated citrate, which have greatly and with advantage, supplanted the other preparations.

Fluid magnesia, in doses of from $\frac{1}{2}$ an ounce to 2 ounces, may be taken either alone, or in milk—the latter mode being convenient for children; or it may be given as an effervescent draught, with lemon-juice. It has been already observed, that magnesia only acts as an aperient when it meets with acid; the apthor has found a dose of magnesia taken after the garden rhubarb used as food, act very well as a gentle aperient. (See MAGNESIUM, CHILDREN, CITRATE OF MAGNESIA, CONCRETION.)

MAGNESIUM, *mag-ne'-zhe-um*,—symbol Mg., equivalent 12, specific gravity 1.743—the metallic base of the alkaline earth magnesia. It is a white malleable silvery metal, constant in dry air, but becoming covered with a white film of magnesia in the presence of moisture. It forms one oxide—magnesia. In many of its characters metallic magnesium resembles zinc. (See MAGNESIA.)

MAGNETIC SPRINGS, *mag-net'-ik*, are useful in the treatment of rheumatism. Michigan has famous magnetic springs at Grand Haven, Eaton Rapids, and St. Louis. (See HEALTH RESORTS, MINERAL WATERS.)

MAGNETISM, ANIMAL. (See MESMERISM.)

MAGNETO-ELECTRICITY. (See ELECTRICITY.)

MAGNOLIA, *mag-no'-le-a*. There are several varieties of the magnolia tree used in medicine. The *Magnolia Glauca*, swamp sassafras, or beaver tree; the *Magnolia Aluminata*, or cucumber tree; and the *Magnolia Tripetata*, or umbrella tree. They belong to the Nat. order *Magnoliaceæ*, and are found in various parts of the United States. The bark, which is the officinal part, is tonic, aromatic, and antiperiodic. It is said to have cured cases of ague when cinchona had failed. It is a favorite remedy with some for dyspepsia, but must not be used in inflammatory states of the system. Dose: of the powdered bark, $\frac{1}{2}$ a teaspoonful, three or four times a day; of the tincture, made by steeping 1 ounce of the bark in 1 pint of brandy or whiskey, 1 tablespoonful, three times a day.

MAIDEN-HAIR, *ma'-dn-hare*, [*Adiantum Pedatum*], a perennial plant or fern belonging to the Nat. order *Filices*. It is found in deep woods, on moist soil throughout the United States and Canada. It is refrigerant, expectorant, tonic and astringent. It makes a pleasant drink in febrile diseases, and has been used with benefit in coughs, chronic catarrh, hoarseness, influenza and asthma. The decoction or the syrup

may be used freely for any of these cases. No nicety need be observed in the dose.

MAIZE, OR INDIAN CORN. (See CEREALS, CORN-MEAL.)

MALARIA, MIASM, *ma-la'-re-a* [from Gr. *miaino*, I infect]. The first of these words is now generally employed to designate a certain effluvium or emanation from marshy ground; and the latter, with the adjunct of marsh, is used in the same sense. Miasma, or miasm, by itself, denotes simply contagion. This poison is not cognizable by the senses, nor can it be detected by chemical tests; it is known only by its effects upon the system, and these the observation of centuries has made well known to us. Marshes, whether salt or fresh, are prolific sources of malaria, especially in a certain stage of the drying process under a hot sun. But wet meadows, grounds alternately flooded and drained, the mud left by the retiring tide in seaports and estuaries, parts covered with low and dense brushwood or with reeds and grass, a country newly cleared of its wood, particularly in warm climates, are all fertile sources of malaria. In tropical countries it is remarked that the evolution of malaria commences immediately on the falling of the rain, and the sickness abates as the ground gets thoroughly wetted. A marsh completely covered with water is innocuous; it is only when the moisture is being dried up under a hot sun that it becomes pestilential. In the case of inundations, it is at their subsidence that sickness prevails. Heat is the agent most active in the production of malaria, in all soils and situations capable of engendering it; hence, in this country, even the milder forms of malarious disease are rarely seen before the vernal or after the autumnal equinox; and wherever they exist, their prevalence is terminated by the cold of winter. As a general rule, malaria is more pernicious in proportion to the proximity to its source; but to this rule there are various exceptions. The distance to which marshy emanations may extend by gradual diffusion has been calculated to be 1,400 to 1,600 feet in elevation, and from 600 to 1,000 feet in a horizontal direction; and these limits, it is said, cannot be exceeded in the temperate zones; but in equatorial regions the activity of the poison is greater; and in the West Indies, vessels 9,000 feet from the marshy coast have felt the effect of its baneful influence. When winds are in operation, the extent to which the poison may be transported is unknown; but instances are recorded of its being conveyed three or more miles. Though malaria is principally owing to heat, it is not in the hottest part of the day that its influence is most pernicious, but in the evening or night. Besides the more familiar effects of malaria—intermittent and remittent fevers—there are a number of organic affections of the spleen, liver, stomach, intestines, and mesenteric glands, also dropsy, apoplexy, palsy, and idiocy, that are traced to its long-

continued application; while cholera, dysentery, and diarrhœa are referred to its more brief agency. Natives of marshy districts, who constantly reside in them, have their whole bodily and mental constitution contaminated by the poison which they inhale. Their aspect is sallow and prematurely senile; their muscles flaccid, hair lank, stature stunted, and their intellectual and moral character low and degraded. The progress of civilization and of agriculture is a principal means in diminishing the domain of malaria. In marshy situations a screen of woods has often been found of great benefit between the habitations and the marshes. Nutritious diet, and whatever is most conducive to health, should be observed by persons exposed to the influence of malaria. 'See the various diseases referred to in this article.)

MALARIAL DISEASES. (See MALARIA.)

MALE FERN. (See ASPIDIUM.)

MALFORMATION. (See DEFORMITY; SPINE, DISEASES AND INJURIES OF THE; IMPERFORATE ANUS, IMPERFORATE VAGINA, ETC.)

MALIC ACID, *ma'-lik as'-id* [Lat. *malum*, an apple], a vegetable acid found abundantly in most acidulous fruits, especially in unripe apples, gooseberries, and currants. The footstalks of the ordinary garden rhubarb also furnish large quantities of it; but it is most usually obtained from the berries of the mountain ash.

MALIGNANT, *ma'-lig'-nant* [Lat. *malignus*], a term applied to pestilential fevers, and to local diseases of any incurable nature, as cancer.

MALIGNANT SORE THROAT. (See SCARLET FEVER, DIPHTHERIA, ETC.)

MALLOW. (See ALTHÆA.)

MALT, INFUSION OF. (See COOKERY FOR THE SICK.)

MALT LIQUORS. (See ALE, PORTER.)

MAMMA, *mam'-ma*, the female breast. (See BREAST.)

MANAGEMENT OF THE SICK-ROOM. (See SICK-ROOM.)

MANDRAKE. (See PODOPHYLLUM PELTATUM.)

MANGANESE, *mang'-ga-nee* [Low Lat. *manganesia*], in Chemist. *J.* symbol Mn.; equivalent, 27.57; specific gravity, 8.013. The ores of manganese are somewhat abundantly distributed throughout the mineral kingdom, generally in the form of black oxide. Manganese is of a grayish white color, brittle, hard enough to scratch glass, and slightly magnetic. If exposed to the air, it speedily becomes oxidized; for which reason it should be preserved in some liquid hydrocarbon, such as naphtha. Manganese combines with carbon and silica, forming unimportant compounds. The manganates are very unstable, being decomposed by boiling and even by remaining in dilute solution. Permanganic acid, which is now largely used as a disinfectant, is described under its proper

heading. Manganese is occasionally, but not often, employed in medicine. It is tonic and alterative in its action, much resembling iron. It is also said to exert a specific influence on the liver. In large doses it is purgative. Dose of binocide, from 3 to 10 or 20 grains, three times a day.

MANIA. (See INSANITY.)

MANITOBA, CLIMATE OF. (See CLIMATE.)

MANNA. (See FRAXINUS.)

MARANTA, *ma-ran'-ta*, the typical genus of the Nat. order *Marantaceæ*. The species *M. arundinaceæ* yields West India arrowroot, one of the most pure and best known of the amylaceous substances used as food. This is extracted from the rhizomes and tubers of the plant; it forms a very firm jelly, and is the most palatable and digestible starch known. It is nutritious and demulcent, and well adapted for the diet of the sick, convalescent, and for infants.

MARASMUS OR WASTING. (See ATROPHY, EMACIATION.)

MARIGOLD. (See CALENDULA.)

MARJORAM. (See ORIGANUM.)

MARMALADE, *mär'-ma-lude* [Fr. *marmelade*]. The well known preserve, made from the Seville orange, is by some regarded as a stomachic.

MARRIAGE, *mar'-rij* [Lat. *mas*, *maris*, a male], the religious and lawful union of the sexes. Various observations go to confirm the fact, that the married state is conducive both to health and to prolongation of life; thus it has been ascertained that married women at the age of twenty-five have, on the average thirty-six years of life before them, whilst unmarried women of the same age have not, on the average, more than between thirty and thirty-one years; that in men, the mortality between the ages of thirty and forty-five, amounts, on the average, to eighteen per cent. in the married, but to twenty-seven per cent., or one-third more, in the unmarried; and, further, that at the age of seventy, whilst there remains alive but eleven bachelors out of every hundred, twenty-seven married men out of the same number may be expected to reach the threescore and ten.

These facts would show that the married state is more conducive to longevity than celibacy.

It has also been shown from statistical returns, that suicide is very much more frequent among the unmarried than the reverse. On the score, therefore, of physical and mental health, independent of other considerations, marriage is advisable; of course its advisability in individual cases must rest on the relative position of the parties. Certainly, however favorable other matters may be, it is a great evil for parties to

enter into the married state too early in life; the female especially, if she commences child-bearing early, that is before the age of two or three and twenty, cannot fail to suffer in her own constitution, and almost necessarily to entail the acquired debility upon her offspring. In the case of those who have family when advanced in life, the trial is less to their own constitutions, but should the father be aged, the children are not likely to be strong. The reader is further referred to articles DISEASE, HEREDITARY TENDENCY, etc., for information respecting the influence which the health and constitution of the parent exerts upon that of the offspring.

As regards physical and mental development, it is an undoubted fact, that the mixture of races, or at least of families totally unconnected with each other, tends greatly to elevate the standard of both. It has been remarked by Humboldt and others, that in South America, the progeny of the negro and of the native Indian, are greatly superior to the progenitors on either side; the superiority of the Caribs to other American Indians has been ascribed to their latitude in intermarriage with the surrounding tribes, and it is well known that the Anglo-Saxon attributes the position of his race in the vanguard of progress to the mixture of blood which has taken place, as a necessary consequence of the successive occupations of Great Britain by different races.

MARROW, *mar'-ro* [Lat. *medulla ossium*] is a light fatty substance lodged in the interior of the bones. Like ordinary adipose tissue, it consists of vesicles containing fat, with blood-vessels distributed to them. It is usually of a yellow color, with 96 parts of fat, 3 of water, and 1 of areolar tissue, in 100 parts. In some parts it is of a reddish color. In the fœtus the bones do not contain marrow, but a transparent reddish fluid like bloody serum, only more consistent. (See BONE.)

MARRUBIUM VULGARE, *mar-ru'-be-um vul-gare'*, or horehound, a perennial plant growing on waste grounds and by the roadsides throughout the United States and Canada. The whole herb is used in medicine. It is stimulant, tonic, expectorant and diuretic, and has been used in the form of syrup and infusion in coughs, colds, catarrh, asthma, and all pulmonary affections. It is said also to have vermifuge properties. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the syrup, 3 to 6 teaspoonfuls; of the infusion, 1 to 4 fluid ounces, three or four times daily. (See INFUSION, VERMIFUGE.)

MARSHMALLOW. (See ALTHÆA.)

MARSH ROSEMARY. (See STATICE CAROLINIANA.)

MASTERWORT, *mas'-ter-wurt* (*Heracleum Lanatum*), a perennial plant belonging to the Nat. order *Apiaceæ*; sometimes called cow-parsnip. It grows all over the United States and Canada. It is stimulant,

antispasmodic and carminative, and is used in flatulency and dyspepsia. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces. (See INFUSION.)

MASTICATION, *mas-te-ka'-shun* [Lat. *masticatio*], the act by which the food is, or ought to be, reduced to a soft mass before swallowing, by the action of the teeth, and by admixture with the saliva. The importance of the proper performance of this act has been pointed out in the article DYSPEPSIA. It has even been suggested, that the average of life at the present time exceeding that of former periods, is partly due to the improvements in dentistry, enabling the aged to masticate their food more perfectly. (See DIGESTION, DYSPEPSIA, SALIVA, TEETH.)

MASTURBATION. (See ONANISM, SEMEN, NOCTURNAL DISCHARGES.)

MATERIA MEDICA, *ma-te'-re-a med'-e-ka* [Lat.], a general name for the substances and agents which are employed for the relief or cure of disease. The term is also applied to that branch of study which elucidates the nature and properties of such substances and agents. In medical schools it is customary to connect Materia Medica with Therapeutics, and to expound both departments of science in one course of lectures. Therapeutics may be described as that branch of study which treats of the application of the Materia Medica for the prevention and cure of disease. These allied branches of study are of the utmost importance; for before a thorough knowledge of the nature and action of medicines is obtained, it is impossible to know how and when to prescribe them. A knowledge of medicines therefore comprehends an acquaintance with their character, their sensible properties, their chemical qualities, and their mode of action, as well as the manner of their preparation. (See MEDICINE.)

MATICO. (See ARTANTHE ELONGATA.)

MATTER, OR PUS. (See PUS, OR MATTER.)

MAXILLARY, *maks'-il-la-re*, or *maks-il'-la-re* [Lat. *maxilla*, the jaw], denotes of or belonging to the jaw, as the maxillary bones, etc. (See ANATOMY.)

MAY-APPLE. (See PODOPHYLLUM PELTATUM.)

MAY FLOWER. (See EPIGEA REPENS.)

MEAD, *meed* [Ang.-Sax. *medu*, *medo*]. This was the favorite beverage of the ancient Scandinavian nations, it was made of honey and water. boiled and fermented; in old medical works it is sometimes called *Hydromel vinosum*. Mead is by no means banished from the list of modern beverages. One mode of preparation is as follows: To 1 gallon of water, add 2 pounds of honey and 1 pound of sugar; let it boil for an hour, then add the whites of 4 eggs to raise the scum, which skim off as it rises; when quite clear, pour it into an oven vessel, and let it stand

for a week, adding a toast dipped in honey to make it work; put in also the peel of 3 or 4 lemons; let it stand for a month, and then, if it is not sufficiently fine, put in more honey and let it stand until it is, then bottle it for use. Some who prefer mead with an aromatic flavor, add cinnamon, cloves, cardamoms, or fragrant herbs, according to taste; thus we have cowslip mead, frontiniac mead, sack mead, etc. These beverages are pleasant to many, and are not unwholesome.

MEADOW FERN. (See MYRICA GALE.)

MEADOW-SAFFRON. (See COLCHICUM.)

MEADOWSWEET. (See SPIRÆA TOMENTOSA.)

MEALS, *mealz* [Ang.-Sax. *mæl*, a part or portion, a repast.] The custom of having certain fixed hours for meals is a very wise one. It would be as injurious to health as it would be subversive of everything like order in a household, were people to eat and drink, as some say they should, only when they are hungry and thirsty. We are so much the creatures of habit, that we can easily confine our hunger and thirst to proper times. Those who accustom themselves to take food at a certain hour in the day will always, while in good health, feel hungry as that hour comes round. Indeed it not unfrequently has been found that the stomach was only weak at those hours to which it has been accustomed, and that much inconvenience has resulted from a change in the hour of taking a meal, more especially dinner, which, with most persons, is the chief meal of the day. (See BREAKFAST, LUNCHEON, DINNER, SUPPER.)

MEAN DURATION OF LIFE. (See MORTALITY.)

MEASLES, *me'-lz* [Lat. *rubeola*], a febrile disease characterized by a peculiar eruption on the skin, occurring, as a rule, only once in a lifetime, generally during childhood. The disease most always prevails as an epidemic, and is contagious. It is called by nosologists *Morbilli*, and and sometimes, but incorrectly, *Rubeola*. The latter designation more properly belongs to a hybrid disease, showing the symptoms of both scarlet fever and measles.

Cause.—It is now very generally admitted that measles is caused by the communication, either by contact or by infection, of a specific poison generated by a person laboring under the disease. It is more easily propagated in cold weather, and as a rule, the characteristic symptoms are not shown until from ten to sixteen days after exposure.

Symptoms.—The first symptoms of measles are those of a feverish cold; there is a shivering, headache, loss of appetite, and perhaps vomiting; the eyes look red, and, as well as the nose, furnish increased watery discharge; there is hoarseness and cough. On the fourth day of the disease, or in from seventy to eighty-four hours after the first symptoms

of illness have shown themselves, the peculiar eruption of measles begins to appear, generally about the forehead, then on the neck and arms, and thence extends to the trunk and extremities; at first the eruption shows only in red points, not unlike flea-bites, but these soon enlarge into rather broad, slightly purplish, crescent-shaped spots, which are just perceptibly elevated above the skin. At this period the skin is hot, there is a good deal of general fever, with thirst, and much hoarse cough, with quickened breathing. After remaining out about four days, the eruption—first, of course, on the face—begins to decline, and by the seventh day, it has generally disappeared, leaving the skin slightly roughened, followed by separation of the cuticle in small scales.

Measles, however, does not always follow the same regular course; there may exist the constitutional symptoms without eruption; but a more common variety is, the characteristic eruption without any constitutional affection—this, however, affords no protection from future attacks of the disease. Again, measles may prevail, either as a very mild disease, scarcely requiring treatment, or it may be as a most malignant and fatal epidemic. The principal danger in ordinary measles arises from the affection of the chest, especially in very young children, many of whom die from this cause, particularly if the epidemic happens to occur during the prevalence of cold winds in the spring, and if the children, as often happens among the poor, are insufficiently attended to. When measles occurs in its malignant, or putrid form, it becomes a fearfully fatal malady, carrying off numbers of children, in spite of the best-directed treatment.

Treatment.—There is no question that a mild attack of measles will get well without any treatment; but in even the mildest, ordinary care to guard against cold should be observed, this being, of course, requisite in proportion to the season of the year. If the attack be a smart one, the person should be kept in bed and moderately warm, allowed to drink freely of diluent, and especially of demulcent drinks, such as barley-water; the diet should consist of milk and farinaceous matters; cooling fruits, and such like may be allowed, the bowels at the same time being attended to, but not purged. Should the eruption of measles seem tardy in coming out, or come out small or insufficiently, or, after having shown itself, should it disappear again suddenly, and before the time of its regular decline, danger must be apprehended; the warm bath is at once the safest and the best remedy; the child being kept in the water—temperature 98°—from ten to twenty minutes, according to age: in addition to this—to a child of five years old—a teaspoonful of spirit of mindererus should be given in a little sweetened water every two or three hours, and warm drinks freely administered at the same time. A very

pernicious practice prevails, of giving children stimulants—"to bring out the eruption," and also in the course of the disease. It is perhaps scarcely necessary to add, that none but the most ignorant and prejudiced could be guilty of so dangerous a practice. When the feverish symptoms in measles run high, it is commonly in connection with the chest affection; in such cases, from 4 to 6 grains of ipecacuanha powder, and $\frac{1}{2}$ a dram of carbonate of potassa, are to be made into a mixture with 3 ounces of water, and of this, a dessert-spoonful given to a child of five years of age every four or five hours; in milder cases, 10 or 15 drops of ipecacuanha wine or syrup are to be given in the same way. Should, as often happens if the child has been permitted to take cold, symptoms of inflammation within the chest show themselves, they must be treated as directed in the article on PNEUMONIA, but in all such cases a medical man should be called. It must always be borne in mind, that measles does not bear much lowering treatment, and that blisters are apt to prove dangerous; a bran poultice is always a preferable application. An idea prevails, that persons affected with measles cannot be kept too hot; this is often a source of much mischief: certainly, cold is to be avoided, but free ventilation, with a moderate temperature (see BED-ROOM) is always the most advantageous. When measles assumes a malignant or putrid form, the case must be considered as eminently dangerous; in this form the eruption is dusky and purple, or rather, livid, the patient extremely depressed, the tongue dry and black-looking; medical assistance as soon as possible, is of course, indispensable, and even then, the hope of saving life is but small; nourishing meat broth, wine, or warm wine whey, must be given frequently, and those measures resorted to which are recommended under typhoid fever.

Convalescence from measles requires much care, if the weather is at all cold, for the disease leaves a susceptibility to inflammatory chest affection for some time. In children of weak constitution, measles, like the other eruptive fevers, is apt to leave a tendency to discharges from the ears, to weakness and redness of the eyes, etc. (See CHILDREN.)

MEASURES. (See WEIGHTS AND MEASURES.)

MEAT. (See BACON, BEEF, FLESH, FOOD, MUTTON, MUSCLE, PORK, VEAL.)

MEAT, POUNDED. (See COOKERY FOR THE SICK.)

MEAT, SALT. (See SALT.)

MECHANICS AND THEIR DISEASES. (See ARTIZANS AND THEIR DISEASES.)

MECONIUM, *me-ko'-ne-um* [Lat.], the dark olive-green discharge from the bowels of a newly-born infant.

MEDICAL ADVICE, *med'-e-ql* [Lat. *medicus*; *medeor*, to heal].

When a medical man is consulted, it is a tacit acknowledgment of confidence; that confidence should be implicit, or placed elsewhere. In the first place, care should be taken that the necessary directions given are fully and accurately understood, being so, they should be as fully and accurately followed out, unless some evident change in the condition of the patient, or in circumstances which the prescriber could not foresee, renders a departure from them necessary; but of this he should have as early notice as possible. There is no greater folly than to call in a medical man, and then, either from wilfulness or weakness of purpose, to controvert or neglect his prescribed rules; it is only equalled by that which conceals or deceives in the particulars of a case, and looks for benefit.

It is so commonly the case, in illness, that officious persons are continually offering their counsel and opinions, disturbing the mind of the patient or of the friends, and perhaps undermining the trust reposed in the attendant practitioner; if it is reflected for one moment, how worthless such counsel and opinions must be, they would be less attended to than they are. Again, if proper confidence is felt in the judgment of the medical attendant, his requirements should be submitted to without remonstrance or grumbling. When doubt and uneasiness respecting the progress or prospects of a case intrude themselves upon the mind of those most interested, and a second opinion is desired, the matter should be openly, at once, stated to the ordinary attendant, and his views and wishes heard; but never should another be called in till this has been done; still less, even if a medical man can be found to demean himself so far, should a clandestine opinion be taken. Lastly, in sending for medical assistance, especially in country districts, as full an account of the symptoms of illness, or accident, as possible, should be transmitted by written note. The precaution *must* save time; it *may* save life. (See OPINION, MEDICAL; DIAGNOSIS, PROGNOSIS, PHYSICIAN, SURGEON, ETC.)

MEDICAL JURISPRUDENCE is that department of science in which medical knowledge is called in to the aid of legislation, and consists in the application of the principles of medical science to the administration of justice and the preservation of the public health. (See MEDICINE.)

MEDICAL SIGNS.

℞ (recipe), take. This symbol was originally the sign ♃ of Jupiter, and was placed at the top of a formula to propitiate the king of the gods, that the compound might act favorably.

℥, a scruple; ℥ss, half a scruple; ℥i, one scruple; ℥iiss, one scruple and a half; ℥ij, two scruples, etc.

℥, a dram; ℥ ss, half a dram; ℥ i, one dram; ℥ iss, one dram and a half; ℥ ij, two drams, etc.

℥, an ounce; ℥ ss, half an ounce; ℥ i, one ounce; ℥ iss, one ounce and a half; ℥ ij, two ounces, etc.

℔, a pound; ℥, a minim or drop; ℥ ℥, a fluid dram; ℥ ℥, a fluid ounce; O, or O (Octarius), a pint; āā (āvā), of each. (See MEDICAL TERMS, WEIGHTS AND MEASURES, METRIC SYSTEM.)

MEDICAL TERMS. Gradually the terms used, even by professional men in the description and treatment of disease, are becoming simplified. Prescriptions, which were formerly invariably written in Latin, are by many prominent physicians in this country now written in plain English. This work has been written so that all may understand, and technical terms, which are introduced only where no other will answer, will be found explained under their proper headings. (See MEDICAL SIGNS.)

MEDICATED BATHS. (See BATHS AND BATHING.)

MEDICINE, *med'-de-sin* [Lat. *medicina*; *medicus*, medical; *medeor*, to heal], is the art and science of curing disease. The various branches into which medicine is now divided, are—*Anatomy*, or a knowledge of the structure of the human body, including *histology*, which treats of the minute structure of the parts discernible only by the microscope. *Practical Anatomy*, which applies a knowledge of the structure to a right performance of the operations of surgery, and *Pathological Anatomy*, which points out the aberrations from the normal or healthy structure of the organs or tissues of the human body. *Physiology*, or a knowledge of the vital actions. *Pathology*, comprising the nature, cause, and cure of disease. *Nosology*, which treats of the various kinds of diseases and tries to arrange them systematically. *Surgery*, treating of mechanical injuries, and the modes of relieving diseases and derangements by mechanical means. *Obstetrics*, or *Midwifery*, dealing with the modes of facilitating delivery, and the diseases of children. *Materia Medica*, or the science of medicines, their nature, composition and effects. *Pharmacy*, or the preparation of medicines. *Therapeutics*, the application and administration of every kind of remedy. *Hygiene*, treating of the laws of health. *Dietetics*, dealing with the rules of diet. *Medical Jurisprudence*, or the application of the science of medicine to the administration of law. *Clinical Medicine*, or the instructions communicated at the bedside of the patient. *Psychological Medicine*, or the nature and treatment of mental diseases. (See ANATOMY, PHYSIOLOGY, SURGERY, MATERIA MEDICA, ETC.) Intimately connected with medicine are the sciences of BOTANY, CHEMISTRY, etc., which see.

MEDICINE CHEST. (See HOUSEHOLD MEDICINES.)

MEDICINE, QUACKERY IN. (See QUACK, QUACKERY.)

MEDICINES. (See HOUSEHOLD MEDICINES, and the various individual articles on drugs, plants, etc., throughout the work.)

MEDICINES, DOSES OF. (See DOSE.)

MEDULLA OBLONGATA. (See BRAIN.)

MEGRIM. (See HEMICRANIA.)

MEL. (See HONEY.)

MELALEUCA, *mel-a-lu'-ka* [Gr. *melas*, black; *leukos*, white, because the trunk is black and the branches white], a genus of the Nat. order *Myrtaceæ*. The species *M. minor*, or *Cajeputi*, is a small tree of the Molucca Islands. Its leaves, when allowed to stand so as to undergo a species of fermentation, and then distilled with water, yield a volatile oil of a limpid nature and a light green color, called cajeput oil. It was formerly much employed as a remedy in cholera, but without any success. It has been used internally as a diffusible stimulant, antispasmodic, and diaphoretic, and externally, when mixed with olive-oil, as a stimulant embrocation. The spirit of cajeput (1 fluid ounce of the oil to 49 fluid ounces of rectified spirit) is given in doses of $\frac{1}{2}$ to 1 teaspoonful. Dose, of the oil, 1 to 5 drops.

MELANCHOLIA. (See MELANCHOLY.)

MELANCHOLY, OR MENTAL DEJECTION, *mel'-an-kol-e* [Gr. *melancholia*, black bile, or choler], when it becomes habitual, is an unfavorable state for resisting the attacks of disease, and every one who observes such a condition of mind approaching, should resolutely shake off the depression. In all conditions of troubled mind, melancholy, or hypochondriasis, the influence of habit may be most happily exercised, by daily—at certain fixed times—actually compelling the mind to bend itself to some definite continuous employment, one which will necessitate some degree of mental exertion to perform, and which will keep up its interest, perhaps an increasing one, from day to day.

Melancholy amounts to a disease, when extreme and of long duration, and under such circumstances, unless checked, ordinarily runs into partial insanity. (See INSANITY, HYPOCHONDRIASIS, NERVOUS DISEASES, HABIT, MONOMANIA, DYSPEPSIA, HEALTH.)

MELISSA, *me-lis'-sq* [Gr. *melissa*, a bee], a genus of the Nat. order *Labiataæ*. *M. officinalis*, common balm, possesses mild stimulant properties, and its decoction is used as a diaphoretic in fevers, as an exhilarating drink in nervous affections, and as an emmenagogue. No nicety need be observed in the dose. (See DECOCTION.)

MELON, *mel'-un* [Lat. *melo*], the well-known pleasant but indigestible fruit.

MEMBRANE, *mem'-brane* [Lat. *membrana*], is an expanded thin

substance lining or covering different parts of the body. Membranes are of different kinds, and are distinguished as *mucous*, lining cavities communicating with the external air; *serous*, lining cavities not communicating; *cellular* membrane, or areolar tissue; *fibrous* membrane, etc. The membrane lining the thorax and enveloping the lungs is called the *pleura*; that lining the abdomen, the *peritoneum*. (See MUCOUS MEMBRANE, SKIN.)

MEMORY, *mem'-o-re* [Lat. *memoria*], the mind's record of the past, is, we have every reason to believe, imperishable. The power to recall what has been imprinted on its, to us, mysterious tablets, may not be always at command, but all know that it is more so at one time than another, and medical men not unfrequently meet with cases of disease, in which the memory of long-forgotten knowledge is again opened up; the scenes, the thoughts, and the language and words of the first childhood, pass again through the mind of the second; the thoughts and feelings of later times are unremembered, and the Greek exercise or Latin poem of the school-room are once more gone over correctly, by those to whom they have been unknown tongues for years. This resuscitation, as it were, of memory, as the effect of disease, is not less remarkable than its loss; in many instances, under the same influence, one man will remember numerals but forget letters, another the reverse; one can only recall the last syllables of words, a second stops short after repeating the first. Still more remarkable are the cases of double memory or consciousness, several of which are on record. In these, either in consequence of some acute disease, or mental shock, all memory seems to be swept away; the mind is left a perfect blank, and education, even in adults, has to be commenced anew; in such cases, the individual has gone on for some time acquiring the simplest rudiments of knowledge, when, all at once, the old memory has returned, and with all its mental stores, blotting out apparently the new; and this alteration of these two singular states of mind has occurred again and again. Loss of memory, exhibited either with respect to things that have hitherto been well remembered, or in unwonted difficulty in the acquisition of new ideas, must, unless well accounted for by advanced age, be regarded suspiciously, as the possible result of incipient cerebral disorder, it may be, of a tendency to insanity.

MENISPERMUM CANADENSE, *men-e-sper'-mum kan-a-dense'*, or yellow parilla, a valuable remedy growing in various parts of the United States. The root is tonic, laxative, alterative and diuretic, and has been used with advantage in scrofula, skin diseases, dyspepsia and general debility. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 4 fluid ounces.

MENORRHAGIA. (See MENSTRUATION.)

MENSES. (See MENSTRUATION.)

MENSTRUATION, *men-stru-a'-shun* [Fr. *menstruation*], the monthly periodical discharge, the catamenia, or menses, is one of, if not the most important of the facts connected with female health.

Commencing usually in this country between the ages of thirteen and fifteen, its recurrence in health—except during pregnancy and nursing—is generally extended for a period of thirty years. It needs not to dwell upon the necessity for the maintenance of the regular and sufficient development of this function during those thirty years of life; females are generally sufficiently aware of it, although, sometimes, in carelessness or wilfulness, they neglect the temporary self-restraint it imposes.

It is a foolish error, or neglect, not uncommon with mothers, to omit all mention of the occurrence of this event to their daughters, the consequence is, that the symptoms which usually precede it, are ignorantly unattended to, and it may happen, the development of the function is checked by imprudences which a little information might have prevented. Moreover, the unexpected appearance of the period is apt to excite much alarm, and the mental agitation, or other causes, may at once check a natural and healthy proceeding; it need scarcely be said, with how great probable injury to health. Mothers or female guardians should always forewarn those committed to their charge, and put them on their guard against those exposures to cold and fatigue, to mental excitement, or abuse of purgative medicines, which may interfere with the natural relief. There is, of course, considerable variation as regards the amount of the menstrual discharge, and also in the period of its continuance. The one—in temperate regions—is from four to five ounces, and the other from three to five days, on the average.

Climate, temperate habits, etc., all exert much influence over the function in different individuals, or even over the same individual at different times; but these varieties may all fall within the limits of health, and do not require interference; and, although in the majority of instances the function is established before the sixteenth year, it may, coincidently with perfect health, be delayed two or three years longer. Generally, however, the delay, or non-development of the menstrual function, if not owing to structural deficiency, or to mechanical obstruction, is owing to some deep-seated constitutional defect, such as is usually distinguished as chlorosis or anæmia. (See CHLOROSIS.) In any case medical advice is requisite to give those proper directions for the improvement of the general health and strength, which are necessary, or to investigate the cause, whatever that may be, of so important a deficiency.

After the first appearance of menstruation. it is not uncommon for the second to be delayed for a considerable period, without the health in the least suffering; after its full establishment this can scarcely be the case. During the menstrual period, there is almost always some amount of irritation of the system, at least of an increased susceptibility to external impressions, and very often of increased tendency to hysterical affections; these facts always require to be kept in mind in the treatment of disease, and care taken that this does not interfere with the natural discharge, which, often in itself, proves no slight relief; indeed, there exists so strong a prejudice on this point among females themselves, that they will voluntarily stop a course of medicine at the time of their period. As well known, menstruation is generally absent during suckling; its occurrence and recurrence, whilst this is going on, should be a signal for weaning, for not only is the double drain most hurtful to the maternal constitution, but the milk undergoes alteration, becomes more serous and less nutritious.

Menstruation may be interfered with by causes from without, which check its development and throw it, as it were, back upon the system; or by causes from within, generally incipient disease, such as consumption or general debility. In the former case the stoppage is of the active, in the latter, of the passive character; in either case, the term amenorrhæa is applied to the condition by medical men. (See CONSUMPTION, DEBILITY.)

When menstruation in a healthy female is checked by external causes, such as cold, the whole system exhibits symptoms of oppression; there is probably fever, much headache, torpor, pain in the back, loins, etc., these symptoms being aggravated, and perhaps mixed up with hysteria, on the return of each menstrual period. In such cases, relief is best afforded by those measures which tend to relieve the overloaded system; free purgation by some of the more active pills, such as compound colocyath, or compound rhubarb, with or without calomel or blue pill, senna, jalap, etc., will be found of service; effervescing draughts or carbonate of potassa and tartaric acid may be tolerably freely taken; if there is much complaint of headache, or of pain in the lower bowels, leeches in the groins, or cupping at the bottom of the back will do good, but these must be used in the interval, not just at the return of the period, at which time, immersion of the feet and legs in hot mustard and water, and hot hip baths will be most serviceable, the latter at the full heat of 98°, and repeated nightly for a few times, the patient remaining in for twenty minutes. Until the restoration of the function the diet should be reduced, especially as regards animal food and stimulants, and walking exercise regularly taken for a considerable time every day.

In amenorrhœa, or suppressed menstruation from constitutional causes, the reverse of all these measures recommended above will probably be requisite; in such cases, the secretion is not thrown back upon the constitution, but the constitution, from some cause, has not power to bring it forward; it is evident then, that remedial measures must not be so much directed to the inducement of the function, as to the amendment of the debilitated constitution and improvement of the general health; for these purposes, the plan recommended under article CHLOROSIS will be generally applicable and to that the reader is referred.

In any case of suppressed menstruation, medical attendance should be procured if possible, but especially so in the last mentioned form, when the secretion ceases without any appreciable cause, and the constitutional powers seem to be impaired; in such cases, the threatening of some disease of debility is to be dreaded, which may, if detected early, be nipped in the bud. It is repeated, in such cases a medical examination cannot be too soon submitted to. Moreover, the distinction between suppressed menstruation with over-fulness, and that dependent upon debility, is not always clearly defined; such cases call for the most careful exercise of educated judgment. In cases of suppressed menstruation, the chance of pregnancy is, of course, to be kept in view; many mistakes have been made on this point. (See PREGNANCY.) The time of life is, of course, to be considered, and the possibility of the secretion disappearing at an earlier age than common.

In some cases of suppressed menstruation, what is called a vicarious, or compensating discharge, is sometimes established from the nose, the ears, the lungs, the stomach, etc., sometimes from an open ulcer.

Painful menstruation, or dysmenorrhœa, is very common both among married and single, chiefly those of an irritable constitution, and of indolent habits. It causes much suffering; the subjects of it are less likely to become mothers, and often miscarry. As regards the cure of this painful disorder, it is not a matter for the unprofessional, it is generally tedious and difficult, or it may be unattainable, even in the best hands. For the relief of the paroxysms of pain much may be effected. Dr. Ashwell says, "Let the patient, on the first premonition of pain, commence the use of the hot bath at 96° or 98°, and ordinarily remain in it for a half or three-quarters of an hour, repeating it three or four times in the twenty-four hours, and always guarding against the effects of cold, by keeping in a hot bed; so long at least, as to allow the skin to resume its natural temperature. When the pain is very severe, the bath may be continued until faintness is induced; and if it be inadequate for this purpose, then $\frac{1}{2}$ a grain of ipecacuanha, or 15 drops of antimonial wine may be given every hour." Opiates give relief; 5 grains of

Dover's powder may be given twice or three times in the twenty-four hours, or 10 drops of laudanum, or 7 or 8 of Battley's solution at the same intervals. Anodyne suppositories are often of much service, or small warm injections containing 10 or 15 drops of laudanum; castor-oil being used if an aperient is requisite.

Painful menstruation is often the result of undue exercise, and especially much standing, just before the menstrual period. Females who suffer much may greatly avoid the inconvenience by taking extra rest on the sofa, or in bed, before the occurrence. Chlorodyne in 20 drop doses, repeated more or less frequently, will often allay the suffering.

In the slighter cases of difficult and painful menstruation, the hot bran poultice may be substituted for the hip-bath.

Profuse menstruation, or menorrhagia, like internal hemorrhage, may be either of an active or passive character. Many varieties of the affection are recognized, but it will be sufficient here to consider it under the above two general heads. Those advanced in life, are, as a general rule, most subject to the disorder. Constitutional tendency, and the influence of climate, both exert so much influence upon the freedom of the menstrual discharge, that they must not be lost sight of in the consideration of cases of menorrhagia; what in one person would be excessive, may be only natural in another, and the usual amount in a warm climate, would be accounted profuse in a cold one. Profuse menstruation of an active character is most apt to occur in persons of full habit of body; and in such cases, within certain limits, may be considered, and allowed to go on, as a salutary relief. When, however, it becomes so free as to tell distinctly upon the strength, medical assistance should be procured, and in the event of the case being a severe one, blood and clots being passed away in quantity, treatment similar to that recommended under the head of ABORTION should be resorted to till proper aid can be obtained. Females liable to these attacks of profuse menstruation, if of full habit of body, ought in the interval to submit themselves to medical treatment; animal food must be taken sparingly, stimulants avoided, early rising practised, and active exercise taken during the day; the bowels being attended to by cooling saline aperients; a teaspoonful of Epsom salts, with 15 drops of dilute sulphuric acid, taken every morning in $\frac{1}{2}$ a pint of water, will form a most suitable dose. Continued and repeated active menorrhagia may end in the passive form.

Passive menorrhagia is most general in persons of debilitated constitution, in whom every drop of blood is of consequence, and in whom the continued weakness resulting from the disorder, is very apt to lay the foundation of consumption, and other diseases of debility; such persons

ought always to be under the care of a medical man. In the event of a sudden attack, means very similar to those employed in the active form are to be at once resorted to, the strength being supported by strong animal broths, and, if there is much exhaustion, by stimulants. In the interval, these cases will require a strengthening tonic treatment, animal food and broths freely, wine or malt liquor, quinine and mineral acids, or tincture of iron, in 15 drop doses, twice a day. It is repeated, there are so many modifications and varieties both of cause and effect, in cases of menorrhagia, that medical advice cannot be safely dispensed with, and should be resorted to as soon as practicable.

The decline of menstruation usually occurs, as already noticed, about thirty years after its first establishment. The period is, and always is, regarded by females themselves as a critical era in their lives. With the cessation of menstruation the capability of conception also ceases. Such an important change cannot take place without causing some constitutional disturbance; indeed, women themselves seem to think it a matter of necessity that they must have illness at this period. This is probably going too far, many do get over the change with comparatively trifling indisposition, and much of the disorder that does occur, may be traced to luxurious and artificial modes of life, perhaps also, to privation and overwork. However, disorder at the "change of life" is sufficiently common to make it a matter of expediency in all cases, of necessity in many, that the health should be carefully watched and any symptoms of disease at once attended to. As might be expected, irritations of the nervous system, hysterical, hypochondriacal, and even approaching insanity, are apt to occur; still more frequently, disorder, indicative of plethora, or over-fulness of blood, such as headaches, or apoplexy, spitting of blood, piles, etc.; or the individual becomes corpulent. (See NERVOUS DISEASES, MELANCHOLY, HYPOCHONDRIASIS.)

Lastly, cancerous diseases not unfrequently show themselves for the first time at the cessation of the menstruation. Moderation in diet, particularly in the use of animal food and stimulants, regular and sufficient exercise, strict attention to the state of the bowels by means of the compound colocynth pill alone, or with blue pill, or by senna, castor-oil, or saline purgatives, are means which may safely and with benefit be carried out; on the occurrence of actual disorder or disease, medical aid should be sought at once—any sudden attack being attended to according to its nature and under the directions given for its management in the proper place. (See ABORTION, HEMORRHAGE, PUBERTY, PREGNANCY, CHLOROSIS, ETC.)

MENTAL DEJECTION. (See MELANCHOLY, HYPOCHONDRIASIS.)

MENTAL EXCITANTS. (See EXCITANTS.)

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MENTAL EXERCISE, *men'-tal* [Lat. *mens*, *mentis*, the mind]. As, by disuse, muscle becomes emaciated, bone softens, blood-vessels are obliterated, and nerves lose their natural structure, so by disuse, does the brain fall out of its proper state, and create misery to its possessor; and as, by over-exertion, the waste of the animal system exceeds the supply, and debility and unsoundness are produced, so, by over-exertion, are the functions of the brain liable to be deranged and destroyed. The processes are physiologically the same, and the effects bear an exact relation to each other.

As with the bodily powers, the mental are to be increased in magnitude and energy by a degree of exercise measured with a just regard to their ordinary health and native or habitual energies. Corresponding, moreover, to the influence which the mind has in giving the nervous stimulus so useful in bodily exercise, is the dependence of the mind upon the body for supplies of healthy nutriment. And, in like manner with the bodily functions, each mental faculty is to be strengthened by the exercise of itself in particular. Every part of our intellectual and moral nature, stands, in this respect, exactly in the situation of the blacksmith's right arm, each must be exercised for its own sake.

The fatal effects of the disuse of the mental faculties are strikingly observable in persons who have the misfortune to be solitarily confined, many of whom become insane, or at least weak in their intellects. It is also observable in the deaf and blind, among whom, from the non-employment of a number of the faculties, weakness of mind and idiocy are more prevalent than among other people. This is indeed a frequent predisposing cause of every form of nervous disease.

The loss of power and health of mind from imperfect or partial exercise of the faculties, is frequently observable in retired merchants, in annuitants, in the clerks of public offices, and in tradesmen, whose professions comprehend a very limited range of objects. There is no class, however, in whom the evil is more widely observable than in those females, who, either from ignorance of the laws of exercise, or from inveterate habit, spend their lives in unbroken seclusion, and in the performance of a limited range of duties. All motive is there wanting. No immediate object of solicitude ever presents itself. Fixing their thoughts entirely on themselves, and constantly brooding over a few narrow and trivial ideas, they at length approach a state little removed from insanity.

In general, the education of such persons has given them only a few accomplishments, calculated to afford employment in one or two of the minor powers of the mind, while all that could have engaged the reflecting powers has been omitted.

On the other hand, excessive exercise of the brain, by propelling too

much blood to it, and unduly distending the vessels, is equally injurious with its disuse. And not only are fatal effects to be apprehended from undue mental task-work, but also from that constant stretch of the mind which attends an unduly anxious and watchful disposition.

It is in large cities that this unintentional kind of self-destruction is most conspicuously exemplified. To spend six to nine hours at a time in business, without food or relaxation, is not only not uncommon, but an almost universal practice, among many: during which time they are never, to use an expressive phrase, *off the stretch*. Upon a stomach enfeebled by exhaustion, they then lay the load of a full meal, which perfect leisure would hardly enable them to digest. But, far from waiting to digest it, they have no sooner laid down knife and fork, than away they must once more rush to business—not perhaps willingly, for nature tells them that it would be decidedly agreeable to rest; but then business must be attended to.

If nature were to punish the daily transgression by the nightly suffering, we should find few who, for the sake of pecuniary gain, would thus expose themselves to misery. But unfortunately she runs long accounts with her children, and like a cheating attorney, seldom renders her bill till the whole subject of litigation has been eaten up. Paralysis at fifty comes upon the victim, and either hurries him off to that prison from which there is no liberation, or leaves him for a few years organically alive to enjoy the fruits of his labors.

It ought to be universally known, that the uses of our intellectual nature are not to be properly realized without a just regard to the laws of that perishable frame with which it is connected; that, in cultivating the mind, we must neither overtask nor undertask the body, neither push it with too great speed, nor leave it neglected; and that, notwithstanding this intimate connection and mutual dependence, the highest merits on the part of the mind will not compensate for muscles mistreated, or soothe a nervous system which severe study has tortured into insanity.

To come to detail, it ought to be impressed on all, that to spend more than a moderate number of hours in mental exercise diminishes insensibly the powers of future application, and tends to abbreviate life; that no mental exercise should be attempted immediately after meals, as the processes of thought and of digestion cannot be safely prosecuted together; and that, without a due share of exercise to the whole of the mental faculties, there can be no soundness in any, while the whole corporeal system will give way beneath a severe pressure upon any one in particular. (See LABOR, EXERCISE, OCCUPATION, HEALTH, EXCITANTS, RECREATION, TRAVELLING, HEALTH RESORTS, LONGEVITY.)

MENTHA PIPERITÆ, *men'-thā pi-per'-i-te*, or peppermint, an herb belonging to the Nat. order *Labiata*. It is a native of Europe, but is extensively cultivated in this country. The whole plant is used in medicine. It is a powerful diffusible stimulant, antispasmodic and carminative, and is used in colic, hysteria, flatulence, spasms or cramps in the stomach, to check nausea and vomiting, and to disguise the taste of other medicines. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 2 to 4 fluid ounces; of the essential oil, 1 to 5 drops; of the essence, $\frac{1}{2}$ to 1 teaspoonful, as often as found necessary. (See INFUSION.)

MENTHA VIRIDIS, *men'-thā vir'-i-dis*, or spearmint, a plant belonging to the Nat. order *Labiata*. It is a native of Europe, but is extensively cultivated in this country. It is aromatic, carminative, antispasmodic and stimulant. It is employed in flatulence and to relieve the pain of colic, and considered a specific in allaying nausea and vomiting. The fluid extract is beneficial in high color or scalding urine, difficult passage of the urine, etc. The tincture has been found serviceable in gonorrhœa, strangury, gravel, and as a local application to painful piles. Dose: of the fluid extract, 1 to 3 teaspoonfuls; the infusion, 1 to 4 fluid ounces; the oil, 2 to 5 drops. (See INFUSION.)

MERCURIAL OINTMENT, *mer-ku'-re-ol* [Lat. *mercurialis*], called also blue ointment, is made by thoroughly incorporating together 1 pound of mercury, 1 pound of prepared lard, and 1 ounce of prepared suet. It is used externally, either as a local or constitutional remedy. It is a popular local application in many parts of the country, in itch, but its liability to produce salivation renders it inferior to sulphur or carbolic acid in this disgusting affection. Its use under any circumstances requires great caution. (See MERCURY.)

MERCURY, QUICKSILVER, OR HYDRARGYRUM, *mer'-ku-re* [Lat. *mercurius*, after the god], symbol Hg. (hydrargyrum), equivalent 100, spec. grav. at—40° Fahr. 13.39, at 60° Fahr. 13.59. Mercury is one of the seven metals known to the ancients, and is, with the exception of bromine, the only element fluid at ordinary temperatures. It is found in nature in the form of cinnabar or sulphide, in the clay-slate and red sandstone underlying the coal-measures. The most famous cinnabar mines are those of Almaden, in Spain; Idria, in Transylvania; and New Almaden, in California. It is also found in large quantities in Australia, China, and Japan, and at Huancavelica, in Peru. Mercury also occurs native as an amalgam with gold and silver, as an iodide, and as horn-mercury, or subchloride. The economic uses of mercury are numerous. With many metals it forms a pasty mass, termed an amalgam. An amalgam of two parts of zinc and four parts of mercury is used to give a partially metallic surface to the rubbers of frictional electric

machines. Mercury freezes into a malleable mass at -40° , and boils at about 660° Fahr. When pure, it is not tarnished by exposure to the air, and does not decompose water at any temperature. Heated in a current of air to 700° or 800° , it becomes gradually converted into the red oxide. Strong nitric acid dissolves it readily, nitrate of mercury and deutoxide of nitrogen being formed. Mercury forms two *chlorides*—the subchloride, or calomel, Hg_2Cl , and the protochloride, perchloride, or corrosive sublimate, HgCl . These two compounds are often mentioned in old text-books as the protochloride and bichloride of mercury respectively. The chloride or corrosive sublimate is an exceedingly powerful and acrid poison. Its antidote is white of egg, with which it forms an insoluble compound. With oxygen it forms three oxychlorides. Mercury forms three *iodides*—the green, or subiodide, Hg_2I , formed by triturating 278 grains of iodine with 1 ounce of mercury; the protiodide, HgI , made by precipitating a solution of corrosive sublimate with iodide of potassium; and an unimportant intermediate iodide. Mercury forms several *nitrates*. It will be only necessary to mention two—the subnitrate, $\text{Hg}_2\text{O}.\text{NO}_5$, prepared by acting on excess of mercury with nitric acid in the cold; and the nitrate, $\text{HgO}.\text{NO}_5$, prepared by dissolving mercury in excess of nitric acid by the aid of heat. Mercury forms two *oxides*—the black, or suboxide, Hg_2O ; and the red, or oxide, HgO , both of which form salts with acids. The suboxide is obtained by sublimating finely levigated calomel with solution of potash or soda, and washing the black precipitate with cold water. The red oxide may be made by exposing metallic mercury to a current of air at 700° , or more readily by decomposing the nitrate by heat. There are several sulphates of mercury, the most important of which is $\text{HgO}.\text{SO}_3$, formed by heating 20 ounces by weight of mercury with 12 fluid ounces of sulphuric acid, in a porcelain vessel, till only a dry white salt remains.

Mercury furnishes some of the most important agents used in medical practice, among which may be particularly mentioned blue pill, grey powder, calomel, red precipitate, blue ointment, and corrosive sublimate.

Quicksilver itself has been much used in medical practice, not as a medicinal, but as a mechanical agent, in obstruction of the bowels; as much as a pound being administered at once, under the idea that its mere weight in passing through the bowels would overcome the stoppage. The practice has been abandoned.

In the forms of blue pill and of grey powder, mercury, according to some, exists merely in a state of minute division, but is most generally thought to be in a state of low oxidation. The former of these preparations is made by rubbing up metallic mercury in certain definite

proportions, with conserve of roses and liquorice root powder, until the mercury disappears, or as it is often expressed, is "killed," the entire mass assuming the well-known grayish-blue color. Grey powder is similarly made by rubbing the mercury with chalk. These two forms are mild, but effective, and most useful preparations; the blue pill for adults, the grey powder for children, or where very gentle action only is required, it being milder than blue pill. It should be remembered in giving gray powder, that if given in preserve or treacle, the acid meeting with the chalk, gives rise to effervescence. (See BLUE PILL, GREY POWDER.)

Calomel is a compound of mercury and chlorine, and is a much more powerful preparation than either of the above; it occurs in lumps, but is generally met with and sold in the form of a heavy white powder with a slight tinge of yellow. It is often adulterated. Dose: as an alterative, $\frac{1}{2}$ a grain; as a purgative, 3 to 5 grains.

Red precipitate is an oxide of mercury, and should be in the form of brilliant red, somewhat glistening scales. It is often adulterated with red lead, which has a much duller appearance.

The administration of mercury in various diseases being noticed when the diseases themselves are treated of, the reader is referred to the proper articles.

The constitutional affection, by means of mercury, known also as mercurialism, or salivation, is not a state to be lightly induced, and without good reason, by a medical man; never by an unprofessional person, except in an extreme and acute case. The first symptoms of the constitution being affected by mercury, or of approaching salivation, is a sense of fulness and tenderness of the gums, the teeth feel, as it were, elongated, and the person cannot bite any firm substance, such as a crust, as well as usual; coincident with these symptoms, the breath acquires a peculiar fœtor, which once smelled, cannot be forgotten, and the gums, if examined, are seen to be slightly swollen, and of rather a purple hue. If the medicine be now stopped, or given only in very small quantity, the constitutional indications do not become more developed; but if the medicine be gone on with as usual, the gums become much more swollen and tender, the tongue and glands around the jaws inflame and swell and there is continued flow of fetid saliva from the mouth. At the same time, there is much constitutional irritation—mercurial fever, as it is called—and, altogether, the individual under the action is in a most miserable condition. Mercurial action is not unfrequently induced by persons continuing to take, inadvertently, aperient pills, which contain small doses of the medicine. When these are prescribed by a medical man for a temporary occasion, warning should always accompany the prescription. (See SALIVATION.)

When mercurial preparations are given in small doses, they exert an inappreciable—what is called “alterative”—action in improving the quantity and quality of various secretions. For this purpose, a grain of blue pill, or a couple of grains of grey powder, may be given twice in the twenty-four hours. Of all the organs on which mercurials exert their effects, the liver is most obviously affected; small alterative doses stimulate gently the flow of bile, and improve its quality if impaired; larger doses stimulate more actively, bringing down the bile freely, and carrying it through the bowels with a purgative action. This is more obviously the case when the liver has been in an overloaded condition; then, a dose of mercurial, even a small one, opens, as it were, the flood-gates, and the rapid descent of bile, often in an acrid condition, causes diarrhœa, with severe griping. When mercurials are given with other medicines not purgatives, it is generally in doses which will not purge, for, should that occur, the desired action is interfered with. When mercurials are given in frequent and not very small doses, either in inflammatory cases, or for the purpose of affecting the constitution, it is usual to combine with them small quantities of opium, a quarter of a grain in each dose, to check the purgative effect, or, as it is expressed, to prevent the mercury from running off by the bowels.

As an alterative, the doses of mercurials are, blue pill 1 grain, grey powder 2 grains, calomel $\frac{1}{2}$ grain; as a purgative, blue pill from 5 to 8 grains, grey powder 6 to 10 grains, calomel 3 to 5 grains. When mercury is given to act specially upon the liver, it is better given according to the Abernethy plan—that is, uncombined at night, and followed by a dose of liquid purgative, black-draught, castor-oil, or the like, in the morning. In this way the mercury is able to exert its full effect upon the liver, whereas, if combined with a purgative at first, it is hurried through the bowels too quickly to do this.

In some persons, mercurials produce a state of great nervous irritation; in others, they cause deadly sickness and faintness. Children generally bear mercurial medicines well, in doses which are large when compared with those of adults. It is almost impossible to salivate a child—indeed, in most, it is quite so. The stools occasioned by the purgative action of mercurials, especially in children, are generally of a dark olive-green.

Poisoning may be occasioned by any of the preparations of mercury, but corrosive sublimate is the most frequent agent of the class by which it is produced. This substance occurs in the form of a heavy, crystalline powder, and has a strong metallic taste. Three grains would be a dangerous, if not a fatal dose. Of course, in such a case, medical assistance should be got with all speed, but, fortunately, the most effectual antidotes

are generally within easy reach; these are the white of eggs, given mingled with a little water, or if this cannot be had at once, thick flour and water, or milk—free vomiting being, at the same time, encouraged by ipecacuanha, if at hand, or by a feather in the throat. The white of egg must not be given to freely; for, if in excess, the good effects of a sufficient smaller quantity are neutralized. If the quantity of the poison given be known, the white of one egg may be given for every three grains. Accidental poisoning, even by the mildest of the mercurials, may arise in consequence of violent constitutional affection, owing to peculiar susceptibility. Such cases are most frequent in children, and are usually accompanied with severe affection of the mouth and mortification of the cheeks, gums, etc.; they generally occur in weak constitutions, and the best antidotes are wine, strong animal broths, bark, or quinine, with 2-drop doses of muriatic acid every six or eight hours. Such cases must be put under medical superintendence.

Slow poisoning by mercury is apt to occur in those—such as looking-glass silverers, etc.—who are much in contact with the metal in their daily occupations. They become liable to a peculiar shaking or mercurial palsy, which compels them to abandon their occupations; the same symptoms occur in those employed in quicksilver mines.

Furriers are apt to be affected with mercurial poisoning, owing to their using preparations of mercury, to dress the fur. The oxide of mercury and solution of the nitrate of mercury are used for this purpose.

Mercurial, or blue ointment, is prepared in a somewhat similar way to blue pill or grey powder. (See MERCURIAL OINTMENT.)

A sulphuret of mercury constitutes the well-known pigment, vermilion.

Powders containing grey powder, calomel, etc., and indeed, heavy powders generally, should either be simply placed on the tongue, or given in some thick vehicle; but a teaspoonful of milk answers very well for the administration of grey powder to children. Calomel, in a thin liquid, such as tea, etc., sinks at once to the bottom and probably is not swallowed. (See BLUE PILL, GREY POWDER, PLUMMER'S PILL, SALIVATION, ETC.)

MESENTERIC, *mez-en-ter'-ik* [Lat. *mesentericus*], a term applied to parts connected with the mesentery, as the mesenteric glands, mesenteric artery, etc. (See MESENTERY.)

MESENTERY, *mez'-en-ter-e* [Gr. *mesos*, middle, and *enteron*, intestine], is a duplicature of the peritoneum, or membrane lining the cavity of the abdomen. It is attached to the vertebræ of the loins, and serves to support the intestines, and to afford safe lodgement to blood-vessels, lacteals, nerves, etc. It consists of three parts—the mesentery properly

so called, connecting the small intestines, the meso-colon attached to the colon, and the meso-rectum to the rectum. (See MESENTERIC.)

MESMERISM, *mez'-mer-izm* [Fr. *mesmerisme*], a term generally applied to the phenomena of animal magnetism, and so called after the name of its first propounder, Mesmer, who lived in the latter part of the eighteenth century. Up to the present day the phenomena of mesmerism have not been satisfactorily accounted for; but originally it was supposed that an analogy really existed between the action of the mineral magnet and human energy.

Animal magnetism—an incorrect, but convenient phrase—may be described as a power which a stronger is supposed to be able to exert over a weaker person, or a healthy over a diseased, whereby, through a mere exertion of the will in some cases, but more generally by this means accompanied by stroking with the hands, the former throws the latter into a state of sleep. During this state certain peculiar sensations are experienced, which arise from nervous excitement, and may have good effects upon the health of the patient. The progressive sensations which characterize the mesmeric state have been thus classified by Kuge, a German philosopher: the first degree, called *waking*, presents no remarkable phenomena. The intellect and the senses still retain their usual powers and susceptibilities. In the second degree, called *half-sleep*, or the imperfect crisis, most of the senses still remain in a state of activity, that of vision only being impaired, the eye withdrawing itself gradually from the power of the will. In the third degree, called the *magnetic* or mesmeric sleep, the senses often refuse to perform their respective functions, and the patient is unconscious. In the fourth degree, called *simple somnambulism*, or the perfect crisis, the patient is said to wake as it were, within himself, and his consciousness returns. In the fifth degree, called *lucidity*, or lucid vision, the patient is placed in what is called the state of self-intuition. In France, and in this country generally, this state is called *clairvoyance*; in Germany, *Hellsehen*. When in this state, he is said to have a clear knowledge of his own internal mental and bodily state, is enabled to calculate with accuracy the phenomena of diseases which will naturally and inevitably occur, and to determine what are their most appropriate and effectual remedies. In the sixth degree called *universal lucidity*, the lucid vision, possessed in the former degree, extends to all objects, near and distant, in space and time. Many persons, however, who practise mesmerism are skeptical with regard to the existence of the two last degrees, although such cases are recorded by the best authorities on the subject. M. Reichenbach, a distinguished German chemist, gave a more scientific aspect to the phenomena of animal magnetism, by stating that he had discovered

a new force in nature, called the *Od force*, or *Odyle*. He regarded this as a peculiar force in nature, the presence of which could only be detected by persons of a highly susceptible nature.

Electro-biology is only another form which the public exhibition of animal magnetism has assumed. Sleep is produced by making persons gaze for a certain length of time on a piece of money, which is placed in the hand. In susceptible individuals this produces a kind of cataleptic sleep, in which they exhibit all the phenomena of the mesmeric state. (See CATALEPSY.)

METALS. (See GOLD, SILVER, IRON, COPPER, MERCURY, LEAD, TIN, ANTIMONY, ZINC, BISMUTH, ARSENIC, MANGANESE, POTASSIUM, SODIUM, BARIUM, CALCIUM, MAGNESIUM.)

METASTASIS, *me-tas'-ta-sis* [Gr. *methistemi*, I transfer], is the sudden transference of a diseased action from one part of the body to another; as when a cutaneous eruption is suddenly checked by exposure to cold, and the disease attacks a deep-seated part; or, in gout, where the disease suddenly shifts from the foot to the stomach, or some other internal part.

METRIC SYSTEM, *me'-trik* [from the Gr. *metron*, a measure], described by the late Charles Sumner, as "a system of weights and measures born of philosophy rather than of chance." In the metric system everything is weighed, thus obviating the difficulties met with in the shape of adhesion, refraction and evaporation. A fixed quantity was selected as the basis of the system, viz.: the ten-millionth part of the earth's quadrant from the Equator to the North Pole, and denominated a *metre* or the unit of length. The cube of the tenth part of the metre was taken as the unit of measures of capacity and denominated *litre*. The weight of distilled water, at its greatest density, which this cube could contain was called a *kilogramme*, and the thousandth part of the kilogramme was adopted as the unit of weight and called a *gram*, or *gramme*. The *multiples* of these measures, proceeding in the decimal progression, are distinguished by employing the prefixes *deca*, *hecto*, *kilo*, and *myria*, taken from the Greek numerals; and the subdivisions, following the same order, by *deci*, *centi*, and *milli*, taken from the Latin numerals. The Greek prefixes increase, and the Latin prefixes diminish the value.

The metre, or unit of length at 32° = 39.371 inches, at 62°.

The litre, or unit of capacity = 61.028 cubic inches.

The gramme, or unit of weight = 15.434 Troy grains.

In Medicine we are interested in the *gramme* alone, for both prescribing and dispensing are best done by weight. Keeping in view the prefixes, in the same way that we say dime, cent, mill, we say *deci-gramme*, *centigramme*, *milligramme*, and *decagramme*, *hectogramme*,

and *kilogramme*. As in money, the whole system is reduced to dollars and cents, so in prescribing, it is practically reduced to *grams* and *centigrams*. As in business paper an upright line separates the dollars and cents, so in the prescription paper, a perpendicular line from top to bottom will separate the grams and centigrams. This line takes the place of decimal points, thus:

gr.i, or one grain =	106
℥i, or one scruple =	125
℥i, or one dram =	4
℥i, or one ounce =	32

A teaspoonful represents 5 grams, and a tablespoonful 20 grams, for the former holds $1\frac{1}{2}$ fluid drams, and the latter a trifle more than four times as much. The metric system is already legalized in both this country and England. Surgeon-General Woodworth has directed all medical officers of the Marine Hospital service to make use of it, and many of the most prominent physicians in our large cities and towns are taking advantage of its simplicity and security. Doubtless the time will soon come when it will be in universal use on this continent. (See WEIGHTS AND MEASURES, MEDICAL SIGNS.)

MIASMA. (See MALARIA, AGUE, ETC.)

MICROSCOPE, *mi'-kro-skope* [Gr. *mikros*, little, and *skopeo*, to view]. This well-known instrument, which enables us to examine structures far too minute to be even visible to our unassisted vision, has done, and is doing much every day, to render the practical applications of medicine more exact. Many of the conditions of the urine are appreciable only by the aid of this invaluable instrument; the nature of tumors, often a matter of serious import, when their removal by surgical operation is the question, is by it, in many cases, determined, in a way that no other means of discrimination could admit of; many other instances might be cited; in fact, a medical practitioner cannot now be considered to avail himself of *every* resource of his calling, unless he uses the microscope. In medico-legal investigation, it proves of the highest service; stains which, without the use of the microscope, could only be doubtfully distinguished, are by it so exactly discriminated as to afford foundation for sworn evidence. As a rational and highly instructive means of amusement, every family should possess a microscope.

Its application to medical science.—It may reasonably be doubted if any of the great improvements, or additions to our means of investigating the nature of disease, can take rank with the introduction of the microscope. Many diseases before unknown are now familiar as household words; and many also of which our knowledge was formerly very obscure, are now by its means thoroughly understood and capable of

being scientifically treated. Perhaps the relation of a few instances will do more than anything else to illustrate the benefit we have derived from the microscope in various ways.

We will suppose an obscure and difficult case, where the patient has repeated attacks of vomiting of blood. A drop of that blood being placed under the microscope, is found to contain cancer cells. Now the causes of vomiting of blood are so numerous and complicated that no one but a medical man can have any idea of the satisfaction afforded to his mind by the certain and positive knowledge thus afforded as to the exact nature of the disease. Or, take the same case in another light. The patient complains of the same symptoms, and the same test is applied. This time, however, to the patient's dismay, it is ascertained beyond the possibility of doubt, that the blood shown is not human blood, but that of some one of the lower animals, and he is at once accused of feigning disease with, perhaps, some object in view. Again, a patient is suffering, perhaps, from indigestion weakened with intolerable depression of spirits and other symptoms, which require to be felt to be described, and which have been treated by ordinary methods in vain. A drop of his urine is placed for examination under the microscope. A new light is immediately thrown upon his case, and the appropriate remedy prescribed with the result of a speedy restoration to health.

In no way has the microscope proved of more value to medical men than in enabling them to examine with precision and accuracy into the various conditions of the urine and kidneys which constitute the affection called Bright's disease. Indeed, so remarkable is the advantage derived in treating the kidneys from an examination of the urine that medical men can tell their condition all through the course of the disease, and can foretell before death, almost the exact state in which those organs will be found in fatal cases.

In affections of the stomach or bowels, the microscope is very valuable in enabling us to ascertain the nature of vomited matter, if there be such. Pus and cancer cells and fibres, on being found, enable us to speak with great comparative confidence as to the nature of the disease. Animal, or vegetable parasites may be discovered, or merely some functional error, or fault of digestion detected. The examination of the nature of the sputum in lung diseases is of the highest importance. In this way cancer, consumption, simple inflammatory disease, or inflammatory disease connected with some special local irritant, as we find in miners and many other trades, may be successfully discriminated, and treated accordingly.

After a patient has had to submit to a painful operation, it may be for the removal of a tumor, the question is often anxiously asked of the

surgeon—Is there no danger of its recurrence? Now this is a question which, by the aid of the microscope in enabling us to examine the tumor, we are in a much better position than formerly to answer with an approach to certainty, and we can thus give much more definite and valuable information to friends and relations as to the probability of other members of the same family being affected by the same disease.

A consideration of these remarks will also show of what importance the microscope may be made in the examination of diseased tissues after death; in fact it may be said that it is almost mainly to this method that we look for the means of extending our knowledge of disease upon a scientific basis, and that even now such important discoveries are being made as seem likely to introduce a new era into the practice of medicine and pathology.

Another way in which the use of the microscope may be said to be of value to all classes of people is in the readiness with which, by means of its aid, the fraudulent tricks of dishonest tradesmen, in adulterating food, can be detected. For instance, arrowroot, which, when genuine, is very expensive, is often adulterated with large quantities of potato starch, the grains of which when viewed under the microscope, present characteristics which at once, and with the greatest ease, distinguish them from those of other starch. Numerous other instances might be mentioned, where the tricks of trade are at once exposed by its means. It is comforting also to think that now-a-days, when diseased meat is so common in our markets (and from all accounts likely to become much more so), many forms of parasitic disease can be discovered even by very low microscopic powers, and in the hands of any tyro.

The discovery of the dependence of several hitherto unknown diseases of the human frame upon the presence of animal, or still more frequently of vegetable parasites, has led to an efficiency of treatment consisting in the destruction of the parasite which is followed by an immediate cure of the distressing symptoms. This alone, had we derived no other benefits from its use, would entitle the workers with the microscope to our lasting gratitude. Favus or scald-head, and ringworm of the scalp might be cited as examples.

MIDDLE STATES, CLIMATE OF. (See CLIMATE.)

MIDRIFF, *mid'-rif*. The diaphragm. (See DIAPHRAGM.)

MIDWIFERY. (See CHILDBED, PARTURITION.)

MILFOIL. (See YARROW.)

MILIARY, *mil'-ya-re* [Lat. *milium*, millet], an eruption, consisting of numerous very minute vesicles, which is apt to appear intermixed with other eruptive diseases, but particularly in cases where persons have been perspiring very much, or kept too hot in illness. Miliary eruption

on the skin used to be very common in women after childbirth, in times when it was the custom to keep them much too hot, and to stimulate. (See SKIN.)

MILK, *milk* [Ang.-Sax. *meole*, *mīle*], the nutrient fluid secreted by mammiferous animals for the sustenance of the young, through the agency of the peculiar mammary glands provided for the purpose, is the only material throughout the range of organization prepared by nature expressly and solely for food; moreover, it contains within itself all that is requisite in food to maintain in health, and to build up the frame of a living animal. The milk of animals generally is characterized by certain general properties and constituents, although it varies much in the proportions of the latter it contains. In this article, attention must be confined to the peculiar nature of the milk of the human female, and to that of the cow; asses' milk has been already noticed. When milk is examined under the microscope, it is found to consist of numberless minute spherical globules which are suspended or float in a serous fluid. From these globules, which are of various sizes, milk derives its opaque whiteness; consequently, when it is diluted with water, and the fluid increased in proportion to the globules, the rich whiteness of pure new milk is destroyed, and the liquid assumes a more or less bluish or semi-transparent appearance. These globules principally consist of the oleaginous, fatty, or creamy portion of the milk, but they also contain curd or caseine; this constituent, however, chiefly exists in a state of solution, in the serous or fluid portion of the liquid, along with the sugar and salts, chiefly phosphates of lime and magnesia, with potash and a small proportion of iron.

Thus we have milk consisting of—Cream, its oily or fatty constituent in the form of globules, which are suspended in water, which holds in solution, curd or caseine, in combination with salts; phosphate of lime, and of magnesia, with potash and iron, and also sugar of milk.

The latter ingredient is not present in the milk of carnivorous animals as long as they are fed on flesh solely, but appears, if they are made to eat a portion of vegetable food. In the milk of the cow, the proportions of curd, of cream, and of sugar—that is, of the caseous, oleaginous and saccharine ingredients—are about equal; in human milk, the saccharine and oleaginous constituents are proportionally greater than the curd. This milk is less opaque and thinner in appearance than cow's milk, and is most nearly approached in composition by that of the mare and ass.

Fresh milk is alkaline, has an average specific gravity of 1.030, and when good, is at first perfectly homogeneous; after standing, the light oily particles separate and float in greater or less proportion at the top of the fluid, in the well-known form of cream. If the milk be kept some

time—more quickly in a warm situation—lactic acid is formed by a process of fermentation, and the curd separates, souring or curdling takes place. Various modes and instruments have been employed for testing the quality of milk as to richness, etc. The addition of a small quantity of carbonate of soda to milk retards its souring and curdling, if it be requisite to keep it longer than usual.

The milk which is first secreted—formed—after the birth of the young, varies from any that succeeds it, particularly in possessing a purgative property which acts beneficially upon the bowels of the offspring. In the cow, this first, or green milk or colostrum, is very nutritive and contains much curd of a peculiar nature, which is coagulable by heat, like the albumen of egg. On this account, it is used in the country parts of England under the name of beastings, for making a kind of custard pudding. The first milk, or colostrum, of the human female, is thin and serous-looking. This first milk or colostrum in animals generally, if examined under the microscope, exhibits an intermixture of larger and different globules from those of ordinary milk.

It is perhaps needless to remark, that upon the health of the being or animal by which milk is afforded, the nutritive properties and wholesomeness of the fluid depend; in the case of mothers, therefore, who are decidedly unhealthy, or the subjects of any disease, scrofulous or otherwise, it is better for their offspring that they should not be nursed by them; and even in the case of the healthy mother, this secretion is so liable to be affected and deteriorated by irregularities in diet, by emotions of the mind and by medicine taken, that the greatest care, as all mothers well know, is requisite to prevent such causes and effects being accidentally originated. (See CHILDREN, NURSE, ETC.)

Cow's milk is so largely used as an article of diet (see FOOD), that its purity and goodness, especially in large towns, become a matter of much importance.

In addition to the modifications which milk undergoes in the hands of the dealer, there are those due to the condition of the animal. The pasturage, the supply of water, temperature, all influence the state of the milk as regards quality and nutritive power. Its wholesomeness depends upon the period after calving—milk not being in good condition for three weeks or a month after this occurrence—upon the health of the cow, upon its food, and upon the condition of the place in which it is kept. It is notorious, that in many large towns, the mode in which extensive dairies of cows are, or have been lodged and fed, is disgusting—most unwholesome for the animals, and therefore for those who use their milk, very many of the cows being diseased, consumptive and stimulated to the last with fermenting brewers' grains.

As an article of diet, milk is for the generality of persons most wholesome, for children especially, of whose food it ought to form in some mode or other a large proportion; less heating than animal food, it is equally nutritious.

Some persons, both children and adults, find new milk too rich, but can take it after the oily cream has been removed by skimming, or if it is diluted with water, or boiled. The addition of from one-third to one-half lime-water, will often cause milk to sit more lightly on the stomach.

The mixture of equal parts of soda water and milk forms a nutritive drink which agrees well with many persons when suffering from illness, in some cases of exhausting disease it will be taken when perhaps, no other form of nourishment is possible. Hot milk, slightly sweetened, to which an equal part of soda water is added, forms an admirable night draught in incipient cold, when stronger remedies are unnecessary, or even in addition to them.

When milk is taken largely without other food, there is risk of the formation of a mass of solid indigestible curd in the stomach, which may cause much uneasiness, and at times in children, even alarming symptoms; its expulsion by vomiting is the usual means of relief. Some persons cannot take milk without suffering from stomach disorder and headache, and others, who suffer from chronic chest affections, find its use aggravate the symptoms. It need scarcely be added, that except in these peculiar cases, milk, and milk preparations, form one of the most valuable resources in the dietetic treatment of the sick. Many invalids derive much benefit from the use of milk warm from the cow in the early morning; in some cases, a small quantity of black pepper, or a teaspoonful of rum or brandy, is added to the teacupful of milk with advantage.

The whey, which is the serous portion of the milk, freed from the curd and a portion of the cream, is light, nutritious and aperient, and is perhaps too much neglected as a beverage; the same remark applies to butter-milk, which is freed from the cream, but retains the curd. (See BREAST, CHEESE, CREAM, CASEINE, CHILDREN, FOOD.)

MILK-CRUST. (See IMPETIGO.)

MILK FEVER [Lat. *febris lactea*], an aggravated form of the excitement which takes place at the onset of lactation.

Causes.—The cause may be a cold, or over-heating the apartment, too stimulating a diet, or any obstruction to the flow of milk from the breast.

Symptoms.—Its first symptoms are increased heat of the system, preceded by shivering, and sometimes accompanied with vertigo and

slight delirium; these are followed by severe headache, thirst, dry tongue, quick pulse, throbbing of the temples, and intolerance of light.

Treatment.—The treatment should be spare diet, perfect tranquillity, subdued light, cooling drinks, and saline aperient medicines; the head should be kept somewhat elevated, and bathed with cold water or evaporating lotions. If the symptoms should become worse in spite of this, apply 6 or more leeches to the head, and put the feet in a warm mustard bath. Most lying-in women have more or less of this fever, which is no doubt an effort of nature to rouse the hitherto dormant mammary organs to secrete a proper quantity of milk; if, however, it is not checked, the febrile action runs too high, and no milk at all is secreted.

MILK FOR INFANTS. (See COOKERY FOR THE SICK, CHILD.)

MILK-LEG, PHLEGMASIA DOLENS, swelled-leg, or white-leg, as it is sometimes named, is one of the most troublesome of the disorders which are apt to follow childbirth. It is inflammation of the veins connected with the lower extremity.

Symptoms.—The symptoms of milk-leg may commence within the first two or three days after delivery, or not for some weeks. There is more or less fever, and the parts about the groin and thigh feel hot, stiff, and painful; swelling commences, and extends over the whole limbs, which, however, does not change color, being perhaps paler or whiter than usual; at this time the pain is often very severe. After a time, these symptoms are ameliorated, but the limb remains—for a long time—swollen, painful, and comparatively useless.

Treatment.—This, it need scarcely be remarked, is a disease which requires proper medical assistance as soon as possible; in the meantime, leeches and fomentations and poultices to the parts about the groin and thigh, will be at once the best and the most soothing treatment; the bowels being regulated either by mild aperients or injections, and opium given if the pain becomes severe; for this purpose 10 grains of Dover's powder may be given at bed-time. Blisters are often used, but as troublesome ulcerations are sometimes apt to form, their application should be left to medical judgment. Continued friction with simple oil is of much service. During convalescence, bandaging, friction, the salt water douche, and strengthening remedies and diet will be requisite, but these must be left to the regulation of the medical attendant.

MILK OF LIME. (See CALCIUM.)

MILK PUNCH. (See COOKERY FOR THE SICK.)

MILK-SICKNESS, a peculiar disease prevailing at times to a great extent among the horses and cattle in some of the States in the Mississippi valley, as well as in Georgia and North Carolina. It owes its name to the fact that it is communicated to man by using the milk of animals

affected with it. Butter made from such milk and the flesh of the diseased animal are even more poisonous than the milk itself.

Cause.—It is supposed to be caused by the animal having eaten of the leaves of the *Eupatorium Ageratoides*, or white snake root, an indigenous plant, resembling very much, when young, the common nettle.

Symptoms.—The disease is ushered in by a feeling of languor and prostration of both the physical and mental powers, followed, in a short time, by burning pain in the stomach, nausea, vomiting, dry hot skin, injected eyes, and intense thirst. Some cases are marked by a peculiar odor emanating from the skin.

Treatment.—An emetic, 10 to 20 grains of ipecacuanha, or the same quantity of sulphate of zinc, and in case these are not at hand, mustard and water or salt and water, should be promptly administered, followed in a short time by a full dose of castor-oil. If the stomach will not retain the oil, resort must be had to purgative injections to relieve the bowels.

To relieve the intense thirst, cold water, or better still, if procurable, small pieces of ice may be given internally, and to mitigate the pain, leeches may be applied to the stomach followed by warm linseed meal poultices. The internal administration of bear's oil is said to be effectual in this strange disease, and when this cannot be had, sweet oil will be found nearly, if not quite, as efficacious.

Great caution is required during convalescence, as the least error in diet, or exposure to the weather or over-exertion will cause a relapse that may prove fatal.

MILK TOAST. (See COOKERY FOR THE SICK.)

MILK-WEED. (See ASCLEPIAS.)

MILT. (See SPLEEN.)

MIND, *mind* [Lat. *mens, mentis*], the immaterial part of our existence—exerts so marked, so powerful an influence over the conditions of our bodily health, that it makes the tone of the mind a weighty consideration in forming an opinion respecting the ultimate issue of many cases of disease. This subject is treated as fully as our limits will allow in the article DISEASE. (See DISEASE, FEAR, NOSTALGIA.)

MINDERERUS, SPIRIT OF. (See AMMONIA.)

MINERAL ACIDS. (See ACIDS.)

MINERAL WATERS, *min'-er-əl* [Fr. *mineral*]. Mineral waters are waters holding in solution certain mineral substances not found in ordinary pure water. They may be arranged in six divisions, viz: 1. *Acidulous*. 2. *Alkaline and carbonated*. 3. *Iron or chalybeate*. 4. *Sulphur*. 5. *Saline*. 6. *Silicious*.

1.—ACIDULOUS WATERS.

They belong to such as contain a free acid other than carbonic acid; are comparatively rare; useful in diseases characterized by an alkaline condition of the secretions. The following is the analysis of two of these:

OAK ORCHARD SPRINGS—(*New York*.)

Gaseous contents.		In a wine gallon.	
Free Sulphuric Acid.....		grains	82.96
Solid contents.			
Sulphate of Lime.....		"	39.60
Protosulphate of Iron.....		"	14.32
Sulphate of Alumina.....		"	9.68
Sulphate of Magnesia.....		"	8.28
Silica.....		"	1.04
Organic Extractive Matters.....		"	3.28
Total.....			76.20

[CHILTON.]

ROCKBRIDGE ALUM SPRING—(*Virginia*.)

Gaseous contents.		In a wine gallon.	
Free Sulphuric Acid.....		grains	15.224
Solid contents.			
Carbonic Acid.....		grains	7.536
Sulphate of Potassium.....		"	1.765
Sulphate of Calcium.....		"	3.263
Sulphate of Magnesium.....		"	1.763
Protoxide of Iron.....		"	4.863
Alumina.....		"	17.905
Crenate of Ammonium.....		"	0.700
Chloride of Sodium.....		"	1.008
Silica.....		"	2.840
Total.....			56.867

2.—ALKALINE AND CARBONATED WATERS.

These contain an excess of carbonic acid, either in the form of gas or as carbonates of iron, lime, magnesia and soda. Their chief use is in the treatment of dyspepsia and chronic affections of the kidneys and bladder, especially in those cases where there is a tendency to the formation of *calculi*. They should not be used in scrofulous cases, nor when there is marked debility present, as they tend to impoverish the blood. The following are the principal waters of this class:

SELTZER—(*Germany*.)

Gaseous contents.		In a wine pint.	
Carbonic Acid.....		cubic inches	4
Solid contents.			
Carbonate of Soda.....		grains	4
Carbonate of Magnesia.....		"	5
Carbonate of Lime.....		"	3
Chloride of Sodium.....		"	17
Total.....			29

[BERGMANN.]

MINERAL WATERS.

VICHY—(*France.*)

	In 1,000 parts by weight.
Water.....	992.572
Gaseous contents.	
Carbonic Acid.....	0.983
Solid contents.	
Carbonate of Sodium.....	4.971
Carbonate of Calcium.....	0.349
Carbonate of Magnesium.....	0.084
Carbonate of Iron.....	0.012
Chloride of Sodium.....	0.570
Sulphate of Sodium.....	0.472
Silica.....	0.073
Total.....	7.514

LEBANON SPRINGS—(*New York.*)

Gaseous contents.	Temperature 72° F.	In a wine gallon.
Oxygen.....		cubic inches 2.00
Nitrogen.....		" " 3.50
Carbonic Acid.....		" " 0.50
Sulphydric Acid.....		traces.
		6.00
Solid contents.		
Sulphuret of Sodium.....		grains 0.02
Carbonate of Soda.....		" 2.41
Sulphate of Potash.....		" 1.04
Chloride of Sodium.....		" 0.96
Carbonate of Lime.....		" 4.05
Sulphate of Magnesia.....		" 1.06
Alumina.....		" 0.45
Oxide of Iron.....		" 0.94
Silicic Acid.....		" 3.25
Org. Com. } Glairine.....		" 0.75
} Baregine.....		" 0.47
Total.....		15.40

[DUSSANCE.]

SWEET SPRINGS—(*Virginia.*)

Gaseous contents.	Temperature 73° F.	In a wine quart.
Carbonic Acid.		
Solid contents.		
Sulphate of Magnesia,	}	grains 12 to 15
Muriate of Soda,		
Muriate of Lime,		
Sulphate of Lime,		
Carbonate of Magnesia,	}	grains 18 to 24
Carbonate of Lime,		
Silicious Earth,		
Iron.....		grains $\frac{1}{2}$ to 1
Total		30 $\frac{1}{2}$ to 40

GETTYSBURG—(*Pennsylvania.*)

Solid contents.	In an Imperial gallon.
Bicarbonate of Sodium, }	grains 46.05
Bicarbonate of Lithium, }	
Bicarbonate of Potassium.....	a trace
Bicarbonate of Magnesium.....	" 76.05
Bicarbonate of Calcium.....	" 81.00
Bicarbonate of Iron.....	a trace
Sulphate of Calcium.....	" 53.20
Silica.....	" 10.00
Total.....	266.30

This water, on account of the lithia it contains, has been used with benefit in rheumatism and gout, and also in cases of indigestion.

BETHESDA.—(*Wisconsin.*)

The following is the analysis of the celebrated Bethesda water of Waukesha, Wisconsin, which has acquired some reputation in the treatment of diabetes, and Bright's disease of the kidneys.

Solid contents.	In a wine gallon.
Chloride of Sodium.....	grains 1.160
Sulphate of Potassa.....	" 0.454
Sulphate of Sodium.....	" 0.542
Bicarbonate of Lime.....	" 17.022
Bicarbonate of Magnesia.....	" 12.388
Bicarbonate of Iron.....	" 0.042
Bicarbonate of Soda.....	" 1.256
Phosphate Soda.....	a trace.
Alumina.....	" 0.122
Silica	" 0.741
Organic Matter.....	" 1.983
Total.....	35.710

[PROF. CHANDLER.]

3.—IRON OR CHALYBEATE WATERS

owe their properties to iron, in combination generally with carbonic acid; and as this is usually in excess, they are often acidulous as well as chalybeate. The metal is found also in the form of a sulphate, but the instances of this are very rare.

Chalybeate waters have a styptic or inky taste; they are, when newly drawn, transparent, and strike a black with tincture of nutgalls; but an ochrey sediment, a hydrated peroxide of iron, soon falls, and the water loses its taste. If the iron be in the state of sulphate and hydrochlorate, however, no sediment falls; and the black color is produced by the above test even after the water has been boiled and filtered.

They are powerful tonics, and employed in dyspepsia, scrofulous

affections, cancer, suppression of the menses, green-sickness, and the other diseases of debility for which the artificial preparations of iron are used. They should not be employed by corpulent persons, nor by those having a tendency to apoplexy, nor in inflammatory affections of any of the internal organs. The following are the principal waters in this class :

TUNBRIDGE WELLS.—(*England.*)

Solid contents.	In a wine gallon.
Chloride of Sodium	grains 2.46
Chloride of Calcium	" 0.39
Chloride of Magnesium	" 0.29
Sulphate of Lime	" 1.41
Carbonate of Lime	" 0.27
Oxide of Iron	" 2.22
Manganese, Silica, etc.....	" 0.44
Loss.....	" 0.13
Total.....	7.61

[SCUDAMORE.]

BRIGHTON.—(*England.*)

Gaseous contents.	In a wine pint.
Carbonic Acid.....	cubic inches 2.5
Solid contents.	
Sulphate of Iron	grains 1 80
Sulphate of Lime.....	" 4.00
Chloride of Sodium.....	" 1.53
Chloride of Magnesium	" 0.75
Silica	" 0.14
Loss.....	" 0 19
Total.....	8.41

[MARCET.]

CHELTENHAM.—(*England.*)

CHALYBEATE SPRING.

Gaseous contents.	In a wine pint.
Carbonic Acid.....	cubic inches 2.05
Solid contents.	
Carbonate of Soda.....	grains 0.5
Sulphate of Soda.....	" 22.7
Sulphate of Magnesia	" 6
Sulphate of Lime	" 2.5
Chloride of Sodium	" 41.3
Oxide of Iron	" 0.8
Total.....	73.8

[BRANDE & PARKES.]

BEDFORD.—(*Pennsylvania.*)

ANDERSON'S SPRING.

Gaseous contents.	Temperature 55° F.	In a wine gallon.
Carbonic Acid.....		cubic inches 74
Solid contents.		
Sulphate of Magnesia.....		grains 80
Sulphate of Lime.....		" 14.5
Chloride of Sodium.....		" 10
Chloride of Calcium.....		" 3
Carbonate of Lime.....		" 8
Carbonate of Iron.....		" 5
Total.....		120.5

[DR. CHURCH.]

The water of the Bedford Spring, on account of the large proportion of sulphate of magnesia, is exceedingly useful in those cases where a laxative and tonic effect are required, as in chronic liver complaint, constipation, and enlarged spleen.

SCHOOLEY'S MOUNTAIN.—(*New Jersey.*)

Solid contents.	Temperature 50° F.	In a wine pint.
Muriate of Soda.....		grains 0.43
Muriate of Lime.....		" 2.40
Muriate of Magnesia.....		" 0.50
Carbonate of Lime.....		" 7.99
Sulphate of Lime.....		" 0.65
Carbonate of Magnesia.....		" 0.40
Silica.....		" 0.80
Carbonate of Iron.....		" 2.00
Extractive.....		" 0.92
Loss.....		" 0.41
Total.....		16.50

BALSTON SPA.—(*New York.*)

SANS SOUCI SPRING.

Solid contents.	Temperature 50.3 F.	In a wine gallon.
Chloride of Sodium.....		grains 143.733
Bicarbonate of Soda.....		" 12.66
Bicarbonate of Magnesia.....		" 39.10
Carbonate of Lime.....		" 43.407
Carbonate of Iron.....		" 5.95
Iodide of Sodium.....		" 1.30
Silica.....		" 1
Total.....		247.15

[STEEL.]

There is an excellent chalybeate spring also at Sharon, New York, and the alum springs of Virginia contain iron in combination with alum.

The following is the analysis of the water of the magnetic mineral spring at Sparta, Wisconsin:

SPARTA.—(*Wisconsin.*)

MAGNETIC MINERAL SPRING.

Solid contents.	In a wine gallon.
Carbonate of Iron.....	grains 14.33501
Carbonate of Magnesia.....	" 4.03101
Carbonate of Lime.....	" 0.40202
Carbonate of Strontia.....	" 0.01402
Carbonate of Baryta.....	" 0.00600
Carbonate of Manganese.....	" 0.00072
Carbonate of Soda.....	" 0.21030
Carbonate of Lithia.....	" 0.02400
Carbonate of Ammonia....	" 0.00210
Sulphate of Soda.....	" 2.21430
Sulphate of Potassa.....	" 0.64130
Sulphate of Lime.....	" 0.18020
Chloride of Calcium.....	" 0.60502
Chloride of Sodium.....	" 0.14301
Iodide of Sodium.....	" 0.00014
Phosphate of Soda.....	" 0.06400
Phosphate of Alumina.....	" 0.00680
Silica	" 0.28000
Hydric Sulphide.....	" 0.00340
Total.....	23.21735

4.—SULPHUR WATERS.

Sulphureous waters derive their character chiefly from sulphuretted hydrogen gas, which in some of them is uncombined, while in others it is united with lime or an alkali. They are transparent when newly drawn from the spring, and have the fetid odor of rotten eggs, which is gradually lost by exposure to the air, and the water becomes turbid. When they are strongly impregnated with the gas, they redden infusion of litmus; and even in a weak state, they blacken silver and lead. Besides containing sulphuretted hydrogen gas, they are not unfrequently, also, impregnated with carbonic acid. They generally contain chloride of magnesium, or other saline matters, which modify their powers as a remedy.

They are resorted to chiefly for the cure of cutaneous eruptions, and are applied locally as well as drunk. They are slightly sudorific, purgative, and diuretic, and are apt to occasion in some patients headache of short duration directly they are drunk. They are also employed for curing visceral and scrofulous obstructions, torpor of the intestines, and some dyspeptic and hypochondriacal cases, and also rheumatism, gout, clergyman's sore throat, and piles. The following list includes the principal sulphur waters:

AIX-LA-CHAPELLE.—(*Germany.*)

Gaseous contents.		Temperature 110° to 143° F.	In a wine pint.
Sulphuretted Hydrogen.....	Cubic inches	5.5	
Solid contents.			
Carbonate of Soda.....	grains	12	
Carbonate of Lime.....	"	4.75	
Chloride of Sodium.....	"	5	
Total		21.75	

[BERGMAN.]

HARROWGATE, OLD WELL.—(*England.*)

Gaseous contents.		In a wine gallon.
Sulphuretted Hydrogen.....	cubic inches	14
Carbonic Acid.....	" "	4.25
Nitrogen.....	" "	8
Carburetted Hydrogen.....	" "	4.15
Total.....		30.40

Solid contents.		
Chloride of Sodium.....	grains	752
Chloride of Calcium.....	"	65.75
Chloride of Magnesium.....	"	29.2
Bicarbonate of Soda.....	"	12.8
Total		859.75

WHITE SULPHUR.—(*Virginia.*)

Gaseous contents.		Temperature 62° F.	In a wine gallon.
Sulphuretted Hydrogen.....	cubic inches	2.5	
Carbonic Acid.....	" "	2	
Oxygen.....	" "	1.448	
Nitrogen.....	" "	3.552	
Total.....		9.5	

Solid contents.		In a wine pint.
Sulphate of Magnesia.....	grains	5.588
Sulphate of Lime.....	"	7.744
Carbonate of Lime.....	"	1.150
Chloride of Calcium.....	"	0.204
Chloride of Sodium.....	"	0.180
Oxide of Iron.....		a trace.
Loss.....	"	0.410
Total.....		15.276

[PROF. ROGERS.]

RED SULPHUR.—(*Virginia.*)

Gaseous contents.		Temperature 54° F.	In an imperial gallon.
Sulphuretted Hydrogen.....	cubic inches	4.54	
Carbonic Acid.....	" "	8.75	
Nitrogen.....	" "	4.25	
Total.....		17.54	

Solid contents.		In 32 Cubic inches.
Sulphate of Soda,	}	grains 1.25
Sulphate of Lime,		
Sulphate of Magnesia,		
Carbonate of Lime,		
uriate of Soda,		

[PROF. ROGERS]

MINERAL WATERS.

UPPER BLUE LICK.—(*Kentucky*.)

Gaseous Contents.		In a wine pint.
Sulphuretted Hydrogen	cubic inches	1.024
Carbonic Acid.....	" "	6.016
Total.....		7.040
Solid contents.		
Carbonate of Lime.....	grains	3.1327
Carbonate of Magnesia.....	"	0.0179
Sulphate of Lime.....	"	5.5166
Sulphate of Potassa.....	"	1.6216
Chloride of Sodium	"	64.5670
Chloride of Potassium.....	"	0.2246
Chloride of Magnesium.....	"	4.7157
Bromide of Magnesium.....	"	0.4760
Iodide of Magnesium.....	"	0.0195
Alumina, Phosphate of Lime and Peroxide of Iron	"	0.2458
Silicic Acid	"	0.1252
Loss	"	1.8596
Total		82.5222

DEEP FOREST BLUE SULPHUR.—(*Indiana*.)

Solid contents.		In a wine gallon.
Chloride of Sodium.....	grains	57.60
Chloride of Magnesium.....	"	24.36
Chloride of Calcium.....	"	15.70
Chloride of Potassium	"	1.28
Bromide of Magnesium.....	"	trace
Sulphate of Soda	"	11.9
Sulphate of Magnesia	"	14.40
Sulphate of Lime.....	"	21.88
Phosphate of Lime	"	.25
Sulphate of Calcium and Magnesia.....	"	.95
Bicarbonate of Soda.....	"	5.84
Carbonate of Soda.....	"	
Bicarbonate of Magnesia.....	"	9.08
Bicarbonate of Lime	"	20.10
Silicic Acid or Alumina.....	"	2.10
Organic matter.....	"	2.25
Carbonic Acid.....	"	
Total.....		187.69

Also Iron in abundance.

[I. G. PHOLE.]

SHARON SPRINGS.—(*New York*.)

WHITE SULPHUR.

Gaseous Contents.		In a wine gallon.
Sulphuretted Hydrogen	cubic inches	20.5
Solid contents.		
Bicarbonate of Magnesia.....	grains	24.0
Sulphate of Magnesia	"	34.0
Sulphate of Lime.....	"	85.4
Hydrosulphate of Magnesia and Lime	"	3.0
Chloride of Sodium and Magnesium	"	2.7
Total.....		149.1

Other efficient sulphur waters are found at Avon, New York; Bladon Springs, Alabama; and Hot Springs, Arkansas; and also in several parts of the State of Florida.

5.—SALINE WATERS.

Saline waters comprise those which contain a sufficient amount of neutral salts to give them a marked, and generally a purgative operation. The salts most usually present are the sulphates and carbonates of lime, magnesia, and soda, and the chlorides of calcium, sodium, and magnesium. Iodine and bromine have been found in a few saline springs; and some of them contain carbonic acid and iron, which might entitle them to be classified, respectively, with the carbonated or chalybeate waters. They are employed with benefit in chronic rheumatism and gout, and all diseases of a scrofulous character, and also in dyspepsia, accompanied with torpor of the bowels.

PLOMBIERES.—(*France.*)

Solid contents.	Temperature 90° to 144° F.	In a wine pint.
Carbonate of Soda.....		grains 2.16
Sulphate of Soda.....		" 2.33
Chloride of Sodium.....		" 1.25
Carbonate of Lime.....		" 0.50
Silica.....		" 1.33
Animal matter.....		" 1.50
Total.....		9.07

CARLSBAD.—(*Bohemia.*)

Solid contents.	Temperature 165° F.	In a wine pint.
Carbonate of Lime.....		grains 4.15
Sulphate of Soda.....		" 41.51
Chloride of Sodium.....		" 5.33
Carbonate of Soda.....		" 11.76
Lithia.....		a trace.
Total.....		62.75

SEIDLITZ.—(*Bohemia*)

Solid contents.		In a wine pint.
Sulphate of Magnesia.....		grains 180
Sulphate of Lime.....		" 5
Carbonate of Magnesia.....		" 2.5
Carbonate of Lime.....		" 0.8
Chloride of Magnesia.....		" 4.5
Total.....		192.8

CHELTENHAM.—(*England.*)

SALINE SPRING.

Solid contents.		In a wine pint.
Sulphate of Soda.....		grains 15
Sulphate of Magnesia.....		" 11
Sulphate of Lime.....		" 4.5
Chloride of Sodium.....		" 50
Total.....		80.5

BATH.—(*England.*)

Gaseous Contents.	Temperature 100° to 106° F.	In a wine pint.
Carbonic Acid		cubic inches 1.2
Solid contents.		
Carbonate of Lime.....		grains 0.8
Sulphate of Soda.....		" 1.4
Sulphate of Lime		" 9.3
Chloride of Sodium		" 3.4
Silica		" 0.2
Total.....		15.1

FRIEDRICHSHALL BITTER WATER.—(*Germany.*)

The celebrated Liebig, writing of this bitter water, says: "The chlorides of sodium and magnesium, and bromide of magnesium, which the bitter water of Friedrichshall contains, places it amongst the most efficacious in Europe, and I regard this spring as a real treasure."

It is an excellent digestive, acting, not only on the stomach itself, but also on the abdominal organs. It increases the biliary secretions, as is shown by the dark color of the evacuations, and also the quantity and solid ingredients of the urine, particularly the excretion of the urea. It increases the appetite, and by promoting the solution of the food facilitates its assimilation. It is used with marked advantages in diseases of the digestive organs, constipation, in gout, gravel, affections of the respiratory organs, prolonged nervous and mental prostration and scrofula. Its effects in chronic inflammation of the womb are said to be very beneficial. It should be taken immediately on rising in the morning. The following is Baron Liebig's analysis:

Gaseous Contents.	In 100 parts.	In 16 ounces.
Free Carbonic Acid.....	0.4020	5.322 gr.
Solid contents.		
Sulphate of Soda.....	6.0560	46.510 gr.
Sulphate of Potash.....	0.1982	1.523 "
Sulphate of Magnesia.....	5.1502	39.553 "
Sulphate of Lime.....	1.3465	10.341 "
Chloride of Sodium	7.9560	61.102 "
Chloride of Magnesium	3.9390	30.252 "
Bromide of Magnesium	0.1140	0.875 "
Carbonate of Magnesia.....	0.5198	3.993 "
Carbonate of Lime	0.0147	0.113 "
Silicious Earth	} Traces	
Oxide of Iron		
Argillaceous Earth.....		
Salts of Ammonia		
Organic Matter		
Totals...	25.2944	194.262 gr.

APOLLINARIS WATER.—(*Germany.*)

Gaseous contents.	In 10,000 parts.
Free and semi-combined Carbonic Acid.....	27.76
Combined Carbonic Acid.....	8.07

Total.....35.83

Solid contents.	
Carbonate of Soda.....	12.57
Chloride of Sodium.....	4.66
Sulphate of Soda.....	3.00
Phosphate of Soda.....	traces
Salts of Potash.....	traces
Carbonate of Magnesia.....	4.42
Carbonate of Lime.....	0.59
Oxide of Iron, with Alumina.....	0.20
Silicic Acid.....	0.08

Total.....25.52

HUNYADI JANOS.—(*Hungary.*)

Gaseous contents.	In 10,000 parts of the water.
Free and semi-combined Carbonic Acid.....	5.226

Solid contents.	
Sulphate of Magnesia.....	225.514
Sulphate of Soda.....	223.500
Bicarbonate of Soda.....	6.760
Bicarbonate of Strontium.....	0.270
Bicarbonate of Oxide of Iron.....	0.006
Bicarbonate of Lime.....	7.967
Sulphate of Potash.....	1.206
Chloride of Sodium.....	17.048
Silicious Earth.....	0.106

Total.....482.377

SARATOGA.—(*New York.*)

CONGRESS WATER.

Gaseous contents.	In a wine gallon.
Carbonic Acid.....	cubic inches 311
Atmospheric Air.....	" " 7

Total.....318

Solid contents.	
Chloride of Sodium.....	grains 385
Iodide of Sodium.....	" 3.5
Bicarbonate of Soda.....	" 8.982
Bicarbonate of Magnesia.....	" 95.788
Carbonate of Lime.....	" 98.098
Carbonate of Iron.....	" 5.075
Silica.....	" 1.5
Bromide of Potassium.....	a trace.

Total.....597.943

[STEEL.

MINERAL WATERS.

SARATOGA.—(*Union Spring.*)

Gaseous contents.		In a wine gallon.	
Carbonic Acid.....	cubic inches	314.16	
Atmospheric Air.....	“ “	4.62	
Total.....		318.78	
Solid contents.			
Chloride of Sodium	grains	243.620	
Carbonate of Magnesia.....	“	84.265	
Carbonate of Lime.....	“	41.600	
Carbonate of Soda	“	12.800	
Carbonate of Iron.....	“	5.452	
Iodide of Sodium, or Iodine.....	“	3.600	
Silica and Alumina.....	“	1.570	
Bromide of Potassium	a trace.		
Total		392.907	
		[J. R. СHILTON.	

Sea water may be regarded as one of the saline mineral waters. Sea bathing is undoubtedly one of the most efficient methods of treatment in scrofulous diseases. The following is the analysis of sea water as found in the English Channel:

SEA WATER.—(*English Channel.*,

		In 1000 grains.	
Water.....	grains	964.744	
Chloride of Sodium	“	27.059	
Chloride of Potassium.....	“	0.765	
Chloride of Magnesium.....	“	3.667	
Bromide of Magnesium.....	“	0.029	
Sulphate of Magnesia.....	“	2.295	
Sulphate of Lime.....	“	1.407	
Carbonate of Lime.....	“	0.033	
Total.....		nearly 1000.000	

6.—SILICIOUS WATERS.

These mineral waters are extremely rare, and in those hitherto discovered, the silica appears to have been dissolved by means of soda. The most remarkable of these are the boiling springs of Geyser, in Iceland, of which the following is the analysis, as given by Black:

Solid contents.		In a wine gallon.	
Soda	grains	5.56	
Alumina.....	“	2.80	
Silica.....	“	31.50	
Muriate of Soda	“	14.42	
Sulphate of Soda.....	“	8.57	
Total		62.85	

Mineral waters frequently fail in accomplishing any good in the treatment of disease, from the fact that they are taken too much at haphazard. No care is manifested in the selection of cases nor in the choice of water. No regularity is observed in the quantity taken nor in the intervals between the doses. No change is made in the diet, nor any precaution used as to exercise. These are all important points, and the patient who would derive benefit from a course of mineral waters, either at home, or at the springs, must observe the same care as during any other mode of treatment. As a rule, only chronic cases are benefited by mineral waters, and the treatment, if possible, should be begun in the summer. (See HEALTH RESORTS, CLIMATE, HEALTH, LITHONTRIPTIC, ETC.)

MINERS, DISEASES OF. (See COLLIERS, DISEASES OF.)

MINIM, *min'-im* [Lat. *minimum*, the least], is the smallest recognized measure of capacity, being the 60th part of a fluid dram. It does not weigh exactly a grain, as the fluid dram weighs only 54.7 grains. It takes the place of that very variable measure, a drop, and may be said to correspond to a drop of distilled water. (See DOSE, WEIGHTS AND MEASURES.)

MINNESOTA, CLIMATE OF. (See CLIMATE.)

MISCARRIAGE. (See ABORTION.)

MIXTURES, *mikst'-yurz* [Lat. *mistura*; *misceo*, *mixtus* to mix], are medicinal compounds in the fluid form; they may be simply composed of various liquids mingled together; they may be solutions, or they may contain insoluble powders, as in the case of chalk mixture, iron mixture, etc. In the latter cases, the addition of gum or of gum mucilage, is useful to prevent the powder subsiding as rapidly as it otherwise will do; but as it will not prevent this altogether, care should always be taken to shake up the sediment in any liquid medicine. In mixtures which are likely to be kept for some time, especially in warm climates, all saccharine matters should be excluded, to avoid fermentation; if this precaution is neglected, the bottles will certainly be burst. In forming mixtures with light powders especially, such as magnesia, ipecacuanha, etc., and indeed with any powders, it must be done in a mortar, adding at first only a very small proportion of fluid. If much water is used at first, the mixture can never be completely and properly effected. (See HOUSEHOLD MEDICINES.)

MOCCASIN ROOT. (See CYPRIPEDIUM PUBESCENS.)

MOIST TETTER. (See IMPETIGO.)

MOISTURE. (See DAMP.)

MOLECULE, *mol'-e-kule* [Fr.], a term used in Chemistry to denote the smallest portion of any chemical substance that can exist alone; an atom being the smallest particle of an element that can exist in a com-

pound body as a mass indivisible by chemical forces. Molecular attraction, or molecular forces, is used to denote the attraction or forces by which molecules are drawn or held together.

MOLES, *molze* [Ang.-Sax. *mal*], as they are often called, "false conceptions," have seldom, if ever, any connection with an impregnated condition of the womb, and arise from causes quite apart from this state. The popular idea that these formations are the result of conception requires correction, for it might lead to most erroneous and distressing aspersions on character.

MOLES ON THE SKIN, a mark on the skin, usually brown, and sometimes covered with hair. Moles are usually present from birth, and though sometimes unseemly, they are better left alone, as when irritated they are apt to occasion greater mischief.

MOMARDICA, *mo-mar'-de-ka*, is the name of a genus of the Nat. order *Cucurbitaceæ*. *M. alaternum* is the squirting cucumber, which by some is made *Ecbalium officinarum*. It is a perennial native of Greece and the south of Europe, flowering in June and July. The fruit is gathered for medicinal use in September, before it is quite ripe. The fruit is cut lengthwise, and the juice lightly pressed out. It is then strained through a hair sieve and set aside to deposit. Carefully pour off the supernatant liquor, pour the sediment on a linen filter and dry it on porous tiles, with a gentle heat. This is elaterium, a powerful hydragogue cathartic, acting chiefly on the intestinal exhalants. It is useful in producing copious water discharges in dropsy. Dose, $\frac{1}{16}$ to $\frac{1}{2}$ grain.

MONKSHOOD. (See ACONITE, ACONITUM.)

MONOMANIA, *mo-no-ma'-ne-a* [Gr. *monos*, single, and *mania*, madness], a species of insanity. Disordered or erroneous persuasions of the mind on one subject. The disease may occur either as acute or chronic, and take any form—suicidal, homicidal, etc., and may lead to incendiarism or theft, to religious melancholy, or to the most absurd ideas and acts. (See INSANITY, HYPOCHONDRIASIS, MELANCHOLY.)

MONOTROPA UNIFLORA, *mo-not'-ro-pa yu-ne-flo'-ra*, or ice-plant, known also by the more common names of fit-plant and Indian pipe, is a singular plant belonging to the Nat. order *Ericaceæ*. It is a native of the Northern and Middle States. The root is tonic, sedative and antispasmodic, and is sometimes used as a substitute for opium in nervous irritability. In St. Vitus's dance and epilepsy, and especially in the convulsions of children, it has been used with success. The dose of the powdered root is from $\frac{1}{2}$ to 1 dram, two or three times a day.

MONSEL'S SOLUTION, *mon'-slz so-lu'-shun*. Persulphate of iron is styptic and hæmastatic. It possesses the advantages over other salts

in being less irritant and more astringent, and is peculiarly adapted to cases of hemorrhage from surfaces in which it is especially desirable to avoid irritation. This solution has been recommended as an efficacious styptic in hemorrhage from the stomach and bowels. As an antiperiodic, it has been employed with signal benefit in several cases of intermittent fever, where quinia had failed, and even produced unpleasant effects. Dose, 5 to 15 drops.

MONSTER, *mon'-stur* [Lat. *monstrum*], is applied to any creature whose formation deviates in some remarkable way from the usual formation of its kind. (See DEFORMITY.)

MONTHLY DISCHARGE. (See MENSTRUATION.)

MOOR-WART, BROAD-LEAVED. (See ANDROMEDA.)

MOOSEWOOD. (See DIRCA PALUSTRIS.)

MORBID GROWTHS, *mor'-bid* [Lat. *morbidus*; *morbus*, a disease; *mors*, death]. These may consist of structures which naturally form part of the body, or which are quite foreign to it in a healthy state; they may be owing to mal-secretion by the cells of the structure, or to a supply of unhealthy material by the blood. Their nature is commonly determined by the structures in which they are found; thus they resemble serous membrane in the pleura, cartilage in the joints, and muscle in the uterus.

One of the most common of the morbid growths is fat, which is often deposited in situations where it seriously obstructs the formation and passage of the secretions, the course of the circulation, or some other organic function necessary to a healthy state of existence: hence we have atrophy, internal ulceration, softening of the bones, and other dangerous results. These, with calculi, or stone in the bladder; albumen and sugar in the urine, constituting Bright's disease; ossification of the heart, and calcareous degeneration of the muscles, are all owing to morbid growths which may be termed natural; those of an unnatural structure generally arise from a morbid state of the blood itself, the ulceration of whose constituent elements causes the formation of cells in the parts nourished by the blood, differing from those of the natural shape and character; if the mischief is confined to the particular structure first affected, we call the morbid growth non-malignant; but if it extends to the surrounding structures, pursues the course of the absorbents, and attacks the lymphatics, then it is malignant deposit. We have an example of the former in tubercle; this occurs in scrofulous subjects; and of the latter in that fearful disease, cancer. (See TUBERCLE, CANCER.)

MORBUS COXARIUS. (See HIP-JOINT DISEASE.)

MORNING AIR. (See AIR.)

MORPHIA, OR MORPHINE, *mor'-fe-a* [from Gr. *morpheus*, the god of sleep], an alkaloid discovered in opium in combination with a peculiar acid termed meconic. It is in morphine that the narcotic principle of opium resides. Its medical salts are: the *acetate*, prepared by adding to 4 parts of morphine, dissolved in 8 parts of distilled water, acetic acid of the specific gravity of 1.075, until the mixture gives a slight tinge of red to litmus paper; the solution is then evaporated to dryness, and the salt reduced to a powder; the dose of which is from $\frac{1}{8}$ to $\frac{1}{2}$ a grain. The *sulphate* is prepared by pouring dilute sulphuric acid into an alcoholic solution of morphine, and evaporating, etc., as above. Dose, same as the acetate. The *citrate* and *muriate* are prepared by the direct combination of these constituents; they have not come much into use, and, therefore, need not be more fully noticed here. (See OPIUM.)

MORTALITY, *mor-tal'-e-te* [Lat. *mortalitas*]. Accounts of the number of deaths that have taken place in particular districts within a specified time, classified according to their ages, the diseases of which they died etc., are termed bills of mortality. They were first compiled in London during the great plague of 1593. When their accuracy can be depended on they are of the utmost importance, as showing the progress of a people in civilization and comfort, and serve as a basis for many important calculations. The Northampton table of Dr. Price was the first one used for the purpose of computing rates of premium for life assurance, but it was found to be faulty, as was also the Carlisle table, constructed from observations of Dr. Heysham. The tables now principally used for this purpose are those known as Experience Tables, constructed by a number of distinguished actuaries from data furnished by the experience of several life assurance corporations. They are formed by analyzing and collating accurate and sufficiently extensive statistics of life and death, and the larger the number of cases analyzed the more nearly will an absolutely correct result be arrived at. What is meant by the "mean duration of life," frequently called the "expectation of life," is the average length of life enjoyed by a given number of persons of the same age. For example, in the following table, known as the American Experience Table, it will be noticed that of 100,000 persons living at ten years of age, 749 will die before reaching the age of eleven. Upon their next year will then enter the difference between 100,000 and 749, viz.: 99,251, of whom 746 will die before attaining the age of twelve. From this table we find that at the age of ten the "expectation of life" is 48.7 years, and at the age of eleven, 48.1 years. By the expression "expectation of life" at any age, is meant the mean after-lifetime remaining to people of that particular age.

AMERICAN EXPERIENCE TABLE.

Number of Living.	Number of Deaths.	Expectation, Years.	Age.	Number of Living.	Number of Deaths.	Expectation, Years.	Age.
100,000	749	48.7	10	64,563	1,199	17.4	55
99,251	746	48.1	11	63,364	1,260	16.7	56
98,505	743	47.4	12	62,104	1,325	16.1	57
97,762	740	46.8	13	60,779	1,394	15.4	58
97,022	737	46.2	14	59,385	1,468	14.7	59
96,285	735	45.5	15	57,917	1,546	14.1	60
95,550	732	44.9	16	56,371	1,628	13.5	61
94,818	729	44.2	17	54,743	1,713	12.9	62
94,089	727	43.5	18	53,030	1,800	12.3	63
93,362	725	42.9	19	51,230	1,889	11.7	64
92,637	723	42.2	20	49,341	1,980	11.1	65
91,914	722	41.5	21	47,361	2,070	10.5	66
91,192	721	40.9	22	45,291	2,158	10.0	67
90,471	720	40.2	23	43,133	2,243	9.5	68
89,751	719	39.5	24	40,890	2,321	9.0	69
89,032	718	38.8	25	38,569	2,391	8.5	70
88,314	718	38.1	26	36,178	2,448	8.0	71
87,596	718	37.4	27	33,730	2,487	7.6	72
86,878	718	36.7	28	31,243	2,505	7.1	73
86,160	719	36.0	29	28,738	2,501	6.7	74
85,441	720	35.3	30	26,237	2,476	6.3	75
84,721	721	34.6	31	23,761	2,431	5.9	76
84,000	723	33.9	32	21,330	2,369	5.5	77
83,277	726	33.2	33	18,961	2,291	5.1	78
82,551	729	32.5	34	16,670	2,196	4.8	79
81,822	732	31.8	35	14,474	2,091	4.4	80
81,090	737	31.1	36	12,383	1,964	4.1	81
80,353	742	30.4	37	10,419	1,816	3.7	82
79,611	749	29.6	38	8,603	1,648	3.4	83
78,862	756	28.9	39	6,955	1,470	3.1	84
78,106	765	28.2	40	5,485	1,292	2.8	85
77,341	774	27.5	41	4,193	1,114	2.5	86
76,567	785	26.7	42	3,079	933	2.2	87
75,782	797	26.0	43	2,146	744	1.9	88
74,985	812	25.3	44	1,402	555	1.7	89
74,173	828	24.5	45	847	385	1.4	90
73,345	848	23.8	46	462	246	1.2	91
72,497	870	23.1	47	216	137	1.0	92
71,627	896	22.4	48	79	58	0.8	93
70,731	927	21.6	49	21	18	0.6	94
69,804	962	20.9	50	3	3	0.5	95
68,842	1,001	20.2	51				96
67,841	1,044	19.5	52				97
66,797	1,091	18.8	53				98
65,706	1,143	18.1	54				99

In the articles LONGEVITY, OCCUPATION and MARRIAGE, will be found an account of the influence exerted on mortality by sex, climate, social position, occupation, marriage, etc. (See LONGEVITY, OCCUPATION, HEALTH, ETC.)

MORTARS AND PESTLES, *mor'-turz, pes'-slz* [Lat. *mortarium*], are instruments used for triturating, bruising, reducing to powder, etc., the different medicinal substances. They are made of various materials, iron, brass, marble, glass, Wedgewood ware, etc., the last being by far

the most generally useful, and quite sufficient for all domestic purposes, at least in this country. In emigrant life, an iron mortar might be found useful.

MORTIFICATION, *mor-te-fe-ka'-shun* [Lat. *mors*, death, and *facio*, I make], or sloughing, is the death of a portion of the living body occurring after violent or peculiar inflammation of the part; the appearance of the mortification varying according to the structure affected.

Causes.—Some parts are more prone to mortification than others, but in all, impeded or deficient circulation of blood is the originator; this may be caused by weakness of the body generally, by weakness of the circulation of a part such as occurs in paralysis, by impediment to the current of blood through the vessels large or small, by pressure on a main branch, as by a tumor, or on one spot, as occurs on the back, in persons confined by exhausting disease, and by intense cold or heat, which destroy the textures, or by the use of unwholesome grain, etc. It may also occur from intense inflammation in persons of full habit of body.

Symptoms.—A part in which inflammation is likely to terminate in mortification is hot, painful, tense and hard; the color of the skin at first dark and angry-looking, becomes mottled, and the surface exhibits blisters filled with dark fluid; at this time the previous heat giving way to a temperature lower than natural, and the pain diminishing; at last the part shrinks, becomes of a dirty gray or ash color, and exhales a fetid odor. Coincident with these local symptoms, if the mortification be extensive, or situated in an important part, the constitution exhibits signs of collapse; the face is pinched, cold, moist; the pulse quick and feeble; the tongue brown; the mental faculties depressed or disordered; the natural functions are performed involuntarily; and hiccup is a very frequent accompaniment.

Treatment.—In the event of an inflamed part showing symptoms of mortification, if a medical man has not been in attendance, he ought to be called without delay; in the meantime, warm poultices may be applied, those made of oatmeal and bran are often useful; but the best applications, if procurable, are the chloride of soda or chloride of lime solution, diluted in the proportion of a $\frac{1}{4}$ to $\frac{1}{2}$ an ounce of the solution to $\frac{1}{2}$ a pint of water, and used warm as a lotion; at the same time, the strength must be supported with wine, strong meat broths, etc., and rest procured by means of opium. When a mortified or sloughing part of the body is separating, its loose and dead portions are usually cut away with scissors, to diminish the fetor; poultices facilitate the separation, and after it has taken place, simple water dressing will generally be found most suitable. (See DRESSING, GANGRENE.)

MOSCHIUS. (See MUSK.)

MOSS, ICELAND. (See CETRARIA.)

MOSS, IRISH, OR CARRAGEEN. (See CHONDRUS.)

MOTHER. (See MENSTRUATION, MARRIAGE, PREGNANCY, CHILD-BEED, CHILDREN, NURSE.)

MOTHER-MARK, *muth'-er-märk*. The term is applied to stains, moles, and other marks, vascular and otherwise, with which a child is born, and for which many fanciful causes are assigned. The most important mother-marks are the vascular nævi. (See CHILDREN.)

MOTHERWORT. (See LEONURUS CARDIACA.)

MOTION, AND MOTOR CHANGE, *mo'-shun* [Lat. *motio*]. Movement in the living body is the result of contraction of the muscles, or at least of the muscular fibres, either voluntarily or involuntarily; this contraction, whenever excited, giving rise to expenditure of the substance of the acting fibres, or in other words, to metamorphosis of some of the elementary constituents of the fibres, chiefly by combination with the oxygen of the arterial blood. This metamorphosis, which there is reason to believe is an essential of the process, is what is meant by motor change. (See ANIMAL HEAT, BLOOD, FOOD, ETC.)

MOUNTAIN FEVER, *moun'-tin* [Lat. *montanus*, mountainous], a form of fever common among the miners in the Pacific States and British Columbia. It is supposed to have its origin in "marsh miasm," the poisonous exhalation from swamps and marshes, known in some localities as swamp poison. It is sometimes intermittent, and sometimes continued in its character, and requires the same kind of treatment as the very severe cases of intermittent fever, or ague. (See AGUE, FEVER, ETC.)

MOUNTAIN LAUREL. (See KALMIA LATIFOLIA.)

MOUNTAIN TEA. (See GAULTHERIA PROCUMBENS.)

MOUNTAIN TOBACCO. (See ARNICA.)

MOUTH, *mouth* [Ang.-Sax. *muth*], the cavity which contains the tongue and teeth, in which is performed the important process of mastication, and by means of which articulate sound is formed, is inclosed by the lips and cheeks, by the upper and lower jaws, by the soft palate and tonsils, by the "fauces" generally, and by the mucous membrane, stretching from the tongue to the lower jaw; it is further surrounded by the salivary glands, which supply its moisture, and which open by the ducts into the various parts of its cavity. The portions of the mouth are liable to different diseases. These along with other necessary information, are detailed in the individual articles. (See PALATE, SALIVA, THROAT, NURSING SORE MOUTH, SALIVATION, THRUSH, ETC.)

MOVEMENT CURE, *moov'-ment* [Fr. *mouvement*]. This consists

of a series of movements, to be performed with or without the aid of an assistant, so arranged as to call into play every muscle, and by securing a proper circulation of the blood, to render the administration of medicine unnecessary. The advocates of this comparatively new departure aim to provide for the invalid an amount of exercise that will invigorate without fatiguing. There is much to be said in favor of this mode of treatment, and while the sanguine expectations of many are not realized, in some forms of chronic disease it is undoubtedly beneficial: The movements recommended for the treatment of dyspepsia, constipation of the bowels, etc., are simple in their nature and can be performed by any one. In a work on "The Movement Cure," by Dr. Taylor of New York, plain directions are given for all suitable cases. The work is worthy of perusal, and to it the reader is referred for further information. The "Lifting Cure," as its name indicates, is an exercise in lifting, having the same objects in view. (See EXERCISE, GYMNASICS.)

MOXA, *mok'-sa*, a name given to a soft woolly substance made in Japan from the leaves of the *Artemisia Chinensis*, or Chinese mugwort. It is used as a cauterizer by placing a small cone of it on the skin and then setting fire to it. On burning down to the part on which it rests, it makes a sore, which is kept open if requisite. It is principally used in cases of gout or rheumatism.

MUCILAGE, *mu'-sil-aj* [Low. Lat. *mucilago*; from Lat. *mucus*, slime, mucus], a thick, semi-fluid, formed by the solution of gummy or starchy matters in water; such as mucilage of gum acacia, arrowroot mucilage, etc. (See ARABIC, GUM; GUM.)

MUCILAGINOUS DRINKS, *mu-se-laj'-e-nus*, are those drinks that partake of or resemble mucilage, such as linseed tea, gum arabic, barley water, gruel, etc. (See DEMULCENTS.)

MUCOUS MEMBRANE, *mu'-kus* [Lat. *mucosus*; *mucus*, slime, mucus], is a membrane which lines certain portions of the body, and which is itself covered on the surface with an epithelium of flattened cells, and from which is secreted the thick viscid secretion named mucus. (See MUCUS.) There are two great systems of mucous membrane: the one which lines the mouth, nose, eyes, throat, bronchi or air tubes, and is also continued down the gullet and through the stomach and bowels to the vent; the other, the genito-urinary membrane, which lines the kidneys, bladder, etc.

The affections to which mucous membranes are subject are sufficiently entered into under such articles as CATARRH OR COMMON COLD; CATARRH, CHRONIC; DIARRHŒA, etc., where the diseases of the parts they line are treated of. (See MEMBRANE.)

MUCUNA, *mu-ku'-na* [*Mukuna guaca* is the Brazilian name of one

species], a genus of papilionaceous *Leguminosæ*. The hairs covering the legumes of the species *M. pruriens* and *prurita* are used as a mechanical anthelmintic, under the name of cowlage or cow-itch. The pods, being dipped into treacle or honey, have the hairs scraped off, until the mass has the consistency of an electuary. Dose, 1 to 2 teaspoonfuls in syrup, followed after three or four hours with a dose of castor-oil.

MUCUS, *mu'-kus* [Lat.], is the thick, somewhat viscid, glairy secretion, formed on the surface of mucous membranes; examined under the microscope, it is seen to contain numerous round granular particles or globules, similar to those which are contained in pus or matter. When a mucous membrane is inflamed, its secreted mucus becomes thin and acrid, as all know it does in a cold in the head, which is simply inflammation of the mucous membrane lining the nostrils; when the inflammation is more intense, or of a peculiar character, the mucus secretion is apt to be converted into a purulent one.

MUGWORT. (See ARTEMISIA.)

MULLEIN. (See VERBASCUM THAPSUS.)

MUMPS OR PAROTITIS, *mumps*, consist essentially of inflammation of the salivary glands, particularly the parotid gland (which see) hence the technical name *parotitis*. It is contagious and frequently extends among children.

Symptoms.—The tongue is coated, the skin hot and dry, and the pulse quick. The parotid gland becomes much enlarged, the swelling extending from the ear to the chin, and the part affected is tender and painful. In about four days the disease begins to decline, the swelling decreases in size, the febrile disturbance grows less, and the patient is soon restored to health. Sometimes, instead of thus leaving the system, the disease flies from the salivary glands to the testicles in the male, causing pain and swelling, and ought to be treated by rest and fomentations. Boys are very much and needlessly alarmed at its occurrence. In young females the breasts are occasionally afflicted. Sometimes the membranes of the brain are affected, in which case a medical man should be promptly summoned.

Treatment.—The bowels should be moved once a day by some mild aperient, as castor-oil or Epsom salts; hot fomentations (see FOMENTATION) should be applied to the swollen glands, and the following given internally:

Take of Nitrate of potash.....	Twenty grains.
Bicarbonate of potash.....	Forty grains.
Sweet spirit of nitre....	Forty drops.
Syrup.....	One dram.
Pure water.....	One half ounce.— <i>Mix</i> .

Give 1 tablespoonful every four hours. This mixture is intended for a child two years old, and must be varied according to age.

MURIATE, *mu'-re-at*, a salt formed by the union of muriatic acid and a base, now more commonly termed hydrochlorate.

MURIATIC ACID, *mu-re-at'-ik*, hydrochloric acid or spirit of salt. (See HYDROCHLORIC ACID.)

MUSCLE, *mus'-sl* [Lat. *musculus*], is a term applied to the fibrous contractile tissue forming the flesh of men and animals, by means of which the many highly-complicated voluntary and involuntary motions of the body are performed. Muscular tissue is of two kinds, distinguished by structural peculiarities and mode of action, the one embracing the muscles of organic life, consisting of simple smooth filaments (except in the case of the heart); the other comprising the muscles of animal life and the heart, and consisting of compound and apparently striated fibres, or tubes inclosing fibrils. The muscles of organic life, or unstriped muscles, consist of fibres, or, rather, elongated spindle-shaped fibre-cells, which are usually flat, from $\frac{1}{4700}$ to $\frac{1}{6100}$ of an inch broad, very clear, granular, and brittle. These fibres are collected in fasciculi, and form the proper contractile coats of the digestive canal, urinary bladder, gall bladder, arteries, etc. The muscles of animal life, or striped muscles, are composed of fleshy bundles enclosed in coverings of fibro-cellular tissue, by which each is at once connected with, and isolated from, those adjacent to it. Each bundle is again divided into smaller ones similarly ensheathed, and similarly divisible through an uncertain number of gradations, till just beyond the reach of the naked eye one arrives at the primitive fasciculi, or the muscular fibres properly so called. These consist of tubes of delicate structureless membrane,—the *sarcolemma* of Bowman, varying in breadth from $\frac{1}{200}$ to $\frac{1}{500}$ in., and enclosing a number of filaments. They are of a pale yellow color, and marked by striæ which pass transversely round them. The primitive fibrils, of which each fasciculus contains several hundreds, are the proper contractile tissue of the muscle, are cylindrical but somewhat flattened in form, and about $\frac{1}{18000}$ of an inch in greatest thickness. The peculiar property of muscular tissue, its contractility, although commonly brought into action by the nervous system, appears to be inherent in the muscular tissue, and not derived by it from the nerves, for it may be manifested in a muscle after being isolated from the influence of the nervous system by division of the nerves supplying it. Muscular contraction is generally believed to be effected by an approximation of the constituent parts of the fibrils, which, without any alteration in their general direction, become closer, flatter, and wider. It is a uniform, simultaneous, and steady short-ending of each fibre and its contents. Muscles are usually styled voluntary or involuntary, according as they are, or are not, subject to the influence of the will; but this division is not strictly accurate,

and is of little value in a scientific point of view. They are for the most part arranged in pairs; as flexors and extensors, abductors and adductors, supinators and pronators, etc. Muscles are attached to bones by means of tendons, which are white and shining, rounded or flattened, fibrous cords, and very resisting.



THE MUSCLES.

The fixed point of a muscle is called its origin, the movable one its insertion. Muscular fibres, especially those of animal life, are constantly in a state of slight contraction, as is evident from the fact that when the action of certain muscles of a part are injured, the antagonistic

muscles always draw it towards them. There are in the human body no fewer than 527 distinct muscles, of which 261 are in pairs, and 5 single on the median line. Of these there are 83 in the head and face; 49 in the neck, 78 in the thorax; 33 in the abdomen, 78 in the back, 98 in the upper extremities, and 108 in the lower. Yet with all this complicated machinery, everything is in perfect order and harmony. (See ANATOMY, FLESH, TENDONS, MOTOR CHANGE.)

MUSHROOMS, *mush'-roomz*, are generally considered wholesome and nourishing. Poisonous fungi are fully treated of in the article AGARICUS, which see. (See also POISONS AND THEIR ANTIDOTES.)

MUSK, OR MOSCHUS, *musk* [Fr. *musc*], a peculiar secretion found in the preputial follicles of the *moschus moschiferus*, or musk-deer, a native of Thibet and other parts of Central Asia. It is used in medicine, and when taken in the dose of a few grains, rouses the energy of the digestive organs, and soon afterwards stimulates the powers of the whole animal system. It increases the action of the heart and arteries, is antispasmodic, and in large doses narcotic. Dose, from 5 to 10 grains, in pill or mixture. It has been found of service in spasmodic asthma, whooping-cough, infantile convulsions, tetanus, epilepsy, hysteria, etc.

MUSTARD, *mus'-turd* [Fr. *moutarde*]. There is perhaps no article in domestic use more largely adulterated than mustard. The adulteration generally consists in the admixture of genuine mustard with wheaten flour, highly colored with turmeric, which fortunately possesses no injurious properties.

Mustard when used in moderation as a stimulating condiment, is wholesome.

Mustard plaster.—The principal use of mustard in medicinal practice is in the well-known mustard plaster, or cataplasm, as a counter-irritant. This application is made in various ways. When speedy, energetic action is required, it is best obtained by mixing good fresh mustard with water, as for the table, and spreading on calico or paper. It is well to interpose a piece of thin gauze or muslin between the mustard and the skin; this does not in any way interfere with the action of the application, and prevents portions of the mustard adhering to the skin and irritating it, after the removal of the cataplasm. Some persons erroneously mix the mustard with vinegar, thinking to render its action stronger; this is a mistake, as it has the reverse effect. Others mix with $\frac{1}{3}$ or $\frac{1}{2}$ flour or bread crumb, while others prepare a very good mustard poultice by mixing $2\frac{1}{2}$ ounces of linseed meal gradually with 10 fluid ounces of boiling water, and adding $2\frac{1}{2}$ ounces of mustard in powder with constant stirring; and these last two methods are very well when modified and longer continued action is desirable, not otherwise.

The usual length of time a mustard plaster can be borne is from twenty minutes to half an hour, and even in this time it often produces blistering; it always leaves for some time a deep red mark on the skin, a fact not to be forgotten in the case of females. When mustard plasters are applied to any one in a state of insensibility, they should be removed within the half-hour; if allowed to remain, should the person recover, troublesome ulceration may be the result.

From their familiarity and accessibility, mustard plasters are apt to be applied somewhat too indiscriminately, both domestically and professionally, and in many cases where a hot bran poultice would be much more soothing and beneficial; they often cause much irritability, and if applied near the spot where inflammation is going on, as in the case of the throat, seem rather to aggravate than to relieve. In the case of a lady under the author's care, the application of a mustard plaster to the lower part of the spine gave rise to effects resembling those produced by the inhalation of laughing gas.

As an internal remedy, mustard is a safe and effectual emetic, in doses of 1, 2, or 3 teaspoonfuls in 6 or 8 ounces of water. The seed of the white mustard, swallowed whole in tablespoonful doses, was, some years ago, in much vogue as a stomachic remedy, but is now little used. It probably produced any benefit it effected by its mechanical action upon the alimentary canal. (See SINAPIS, COUNTER-IRRITATION, CONDIMENTS, ETC.)

MUSTARD PLASTER, OR POULTICE. (See POULTICE, MUSTARD.)

MUTTON, *mut'-tn* [Fr. *mouton*], when tender, is the meat best adapted for invalids and persons of weak digestive powers. The best mutton chops are those cut out of the centre of a leg. (See FOOD.)

MUTTON BROTH. (See COOKERY FOR THE SICK.)

MYOPIA, *mi-o'-pe-a* [Gr. *muo*, I contract, and *ops*, the eye], is a term used to denote near-sightedness.

MYRICA CERIFERA, *me-ri'-ka se-rif'-e-ra*, or bayberry, a shrub belonging to the Nat. order *Myricaceæ*. It is commonly called candleberry, waxberry, and wax myrtle. It is found in damp places in many parts of the United States; is very abundant in New Jersey. The bark of the root is the part used. It is a mild astringent and stimulant. In large doses it is liable to produce vomiting. It may also possess expectorant properties, connected with its acridness. This agent is considerably employed by a class of physicians in the management of scrofulous complaints, jaundice, diarrhoea, dysentery and other diseases where an astringent stimulant is needed. Dose: of the fluid extract, 1 to 2 teaspoonfuls; the infusion, 1 to 2 fluid ounces. (See INFUSION.)

MYRICA GALE, *me-ri'-ka gale*, or sweet gale, a plant belonging to the Nat. order *Myricaceæ*, and commonly called sweet willow, Dutch myrtle, bog myrtle, meadow fern, bay bush. It is found in dry woods or in open pastures from Canada to Florida. It is acrid, stimulant and astringent. In large doses it proves an emetic, over-burdening the stomach with stimulus. It has been administered with benefit in diarrhœa, dysentery, and diseases where astringent stimulants are indicated. It has also been recommended as a vermifuge, both as an internal and external application. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

MYRISTICA, *me-ris'-te-ka*, the typical genus of the Nat. order *Myristicaceæ*. The most important species is *M. moschata* or *officinalis*, the nutmeg-tree. It is a native of the Molucca Islands, but is now cultivated in many tropical regions. The well-known spices nutmegs and mace are derived from this species. They are both used in medicine as stimulants, carminatives, and flavoring agents. Nutmegs, when distilled with water, yield a volatile oil called volatile or essential oil of nutmegs. The oil of nutmeg is given in doses of 2 to 6 drops on sugar. The spirit (1 part of the oil to 49 of rectified spirit) is given in doses of 30 to 60 drops.

MYROSPERMUM, *mi'-ro-sper'-mum* [Gr. *muron*, myrrh; *sperma*, seed], a genus of balsamiferous trees belonging to the Nat. order *Leguminosæ*. The species are natives of South America and the West Indies. *M. toluiferum* is the source of balsam of Tolu, and *M. Pereira* that of balsam of Peru. They are largely used in medicine for their stimulant and expectorant properties in chronic catarrh, asthma, etc. Dose: of the former, 10 to 20 grains; of the latter, 10 to 15 drops; of the tincture of Tolu ($2\frac{1}{2}$ oz. to 1 pint of rectified spirit), the dose is from 20 to 50 drops; of the syrup, 1 to 2 teaspoonfuls.

MYRRH. (See BALSAMODENDRON.)

N.

N. In prescriptions, this letter is a contraction for *numero*, in number. Thus *Pil. Hydrarg. N. xij.* means mercurial pill, 12 in number.

NABALUS ALBUS, *na'-ba-lus al'-bus*, or lion's foot. This plant known also as white lettuce and rattlesnake root, is a perennial plant, belonging to the Nat. order *Compositæ*. It is found in moist woods and shady places all over the United States and Canada. It is said to be an antidote to the bite of the rattlesnake, hence its name. The milky juice

of the plant is taken internally, and the leaves steeped in water, are applied to the wound and frequently changed.

The juice may be taken in tablespoonful doses, repeated every half hour until reaction sets in.

NAILS, *nalze* [Ang.-Sax. *nægel*], are the appendages to the fingers and toes of human beings which correspond with the claws and hoofs of other animals. Under the microscope, a portion of newly-formed nail is found to consist almost entirely of nucleated cells, which are of exactly the same character as those found in the new layers of epidermal tissue. No distinct structure can be observed as the nail grows older, but when immersed in a weak solution of caustic potash or soda the cells become visible. The nails of a human being are produced from a fold in the true skin, which has a highly vascular surface, furnished with longitudinal elevated ridges, to which blood-vessels are copiously distributed, and between which the soft inner layer of the nail drops down. The growth of the nail is caused by additions to its base; but as it moves, it also receives additional matter from the skin, on which it rests. (See NAILS, INGROWING OF THE.)

NAILS, INGROWING OF THE. Ingrowing of the nails is a painful condition that occasionally occurs, particularly with the great toes in consequence of tight or ill-fitting boots. In order to cure, the nail should be well soaked in warm water, and the side scraped very thin. A small pellet of cotton wool should also be carefully inserted under the edge of the nail, and the foot rested as much as possible for a few days. Tincture of iron should also be applied once a day. Should this treatment fail, it will be necessary to remove a portion of the nail, an operation which is very painful, and is best done under chloroform.

When there is any tendency to ingrowing observed, the nails ought not to be cut or rounded off at the corner, but allowed to grow quite square and large; boots should be worn so as not to press at all upon the nail.

In consumption, as well as in all chronic chest diseases, accompanied by emaciation, the nails have a peculiar curved and clubbed appearance, quite familiar to medical men. (See NAILS.)

NARCOTICS, *nar-kot'-iks* [Gr. *narke*, stupor], medicines which in small or moderate doses produce stupor or sleep, and which is generally preceded by temporary excitement. The stimulating power of most narcotics is manifested principally when they are given in small doses, while a full dose generally produces the narcotic effect at once, without any apparent stimulation preceding it. Considerable skill and experience are required in the administration of narcotics, both as regards the cases in which they are to be prescribed and the persons to whom they

are to be given. Narcotics are employed (1) to produce sleep, (2) to allay pain or spasm, (3) to arrest inordinate secretion, (4) to control inflammatory action or irritation. A full dose of a narcotic introduced into the stomach will, if the stomach be empty, destroy the desire for food; while, if it contain food, the digestive process is suspended or rendered slower. Their continued or frequent use is therefore injurious to the nutrition of the body, as instanced in the persons of opium-eaters. The general action of narcotics is modified by a great variety of circumstances, such as the quantity prescribed, the frequency of repetition; also the force of habit, climate, or season, and above all by idiosyncrasy. The amount of action is also largely determined by the age of the person taking the narcotic. Young children bear narcotics badly. The amount of the dose should be determined chiefly by the effect produced, and should be small at first, particularly in debilitated persons. To this class of medicines belong opium, hemlock, henbane, belladonna, aconite, stramonium, camphor, digitalis, tobacco, alcohol, ether, nux vomica, leopard's-bane, hop, strong-scented lettuce, and a variety of other substances. When one narcotic fails, another will frequently be found to produce the desired effect. (See ANÆSTHETICS, ANODYNE, SEDATIVES.)

NARCOTINE, *när'-ko-tin*, one of the alkaloids of opium. (See OPIUM.)

NATURAL MEANS OF CURE. (See CURE BY NATURAL MEANS.)

NATURAL POWERS OF RECOVERY. (See DISEASE.)

NATURE'S CALLS. (See COSTIVENESS, CATHARTICS, STOOLS, DIGESTION, ETC.)

NAUSEA, *naw'-she-a* [Gr. *naus*, a ship], or the sensation of sickness or of inclination to vomit, is best known from individual experience of the sensation.

Although the feeling of nausea itself is referred to the stomach, and may be due to causes connected with that organ simply, it also very frequently originates in disorder in other and distant parts of the body, a fact which often constitutes it a valuable symptom. Causes which act directly upon the brain are among the most frequent originators of nausea, and there is every reason to believe that the sensation from which the term is probably derived—sea-sickness—is primarily excited in the brain itself. As all know, a blow on the head occasions nausea and vomiting; severe injuries in other parts of the body, such as dislocations, also occasion sickness by acting indirectly upon the stomach; the nausea of pregnancy is another example of this sympathetic nausea. Disgusting odors are instances of the same thing. The action of drugs of an emetic character must be accounted for by their influence on the nervous system, for they act equally well as nauseants, if injected in solution into the

veins, as if they were swallowed. Lastly, the presence of indigestible food, or of bile, etc., in the stomach itself, will also cause nausea, which may also be produced by simple over-distension of the organ by gas or fluid. The instances given of sympathetic nausea will explain how it comes to be a valuable guiding symptom in the investigation of disease. Incipient or advanced affection of the brain; gall-stones; stone in the kidney; disease of the womb; pregnancy, and many other conditions of various organs, giving rise to the sensation of nausea, or to actual vomiting.

The complete relaxation of the nervous system which occurs in an individual under the influence of nausea, renders its existence favorable to the performance of certain operations upon the body, such as a reduction of a dislocation, or of a rupture; it is, therefore, the practice of surgeons to induce it artificially—as by the administration of tartar emetic—for the above ends. The means of relief in nausea, and its very frequent accompaniment, vomiting, must, of course, depend upon the cause. When dependent upon brain affection, remedial measures are of but little service, but in this, as in other cases, may be resorted to. Effervescing draughts, with lemon-juice, will often be extremely useful. Creasote is effectual, especially in sea-sickness (see CREASOTE). A teaspoonful of magnesia in a glass of sherry has been found a good remedy, but one which is inadmissible in head affections; a mustard plaster to the pit of the stomach may be used with advantage. When the nausea is thought to be dependent upon the presence of bile or other matters in the stomach, it is soonest relieved by exciting vomiting, which is generally easily effected, either by means of luke-warm water alone, infusion of chamomile, or at all events by a small dose of ipecacuanha. After the stomach has been cleared, effervescing draughts will be at once grateful and beneficial. (See EFFERVESCENCE, SEA-SICKNESS, VOMITING, ETC.)

NAVEL, *na'-vl* [Ang.-Sax. *nafela*, *nafol*], is the centre of the lower part of the abdomen, being the point where the umbilical cord of the fœtus passed out. When the child is born the navel-string has to be severed and tied, and in a few days it sloughs and comes away, leaving the indentation in the belly which is commonly called the navel. (See CHILDREN, RUPTURE, CHILDBED.)

NAVEL STRING. (See CHILDBED.)

NEAR-SIGHT. (See VISION.)

NECK, *nek* [Ang.-Sax. *necca*]. The bond of connection between the head and the trunk of the body, is perhaps the most important region of the frame; certainly it is so in a surgical point of view, on account of the numerous important parts it comprises.

It is principally made up of the cervical vertebræ, and the numerous muscles which cover them and are concerned in their different movements and those of the head and shoulders. The pharynx and œsophagus are in contact with the front of the vertebral column, and the larynx and trachea in front of these. The large blood-vessels of the head pass through the neck on the front of the spine, and some important nerves take nearly the same course. These several organs, connected together rather loosely by cellular substance and surrounded by integuments, compose the neck. *Diseases* which affect the parts situated about the neck, such as its glands, etc., fall to be considered under other heads and need not be enlarged upon here; and under such articles as *HANGING*, *CHOKING*, *ARTERY*, etc., will be found information concerning the accidents to which this region and its parts are liable.

Impediments to circulation.—There remains, however, for consideration, the effect of mechanical impediments to the circulation of the blood in the neck, connected either with clothing, or with those muscular movements of which the part under consideration possesses so wide a range. Some persons, particularly those with short necks, or with tendency to apoplexy, epilepsy, etc., are much more liable to be affected than others, by anything which, even for a very short time, checks the free flow of blood through the veins downward from the head; and such persons ought to be especially careful, that nothing they wear about the neck becomes in the slightest degree tight, not simply when the face is looking straight forward, but when it is turned from side to side. It has occurred that a person liable to head attacks, has fallen down insensible in consequence of the simple fact of turning the head rather more to one side than usual, and thus giving a little extra tightness to a shirt-collar. It is well known, too, that the tight stock of the soldier has been the cause of numerous apoplectic and other affections, in consequence of its effect in compressing the large vessels of the neck.

A similar caution is requisite with regard to children. Accidents have occurred in consequence of nurses and others tying too tightly—a very common practice—the strings of the night-cap, which, perhaps, become still more tightened by some movement during sleep. From a similar cause, arises the danger which men incur from sleeping without unfastening the usual clothing about the neck; apoplexy may result. But not only may head affection result from tightness around the neck externally; it may, in the predisposed, be the effect of the action of the muscles alone; these, if the head is turned strongly to one side, exert strong pressure upon the veins and impede the flow of blood, damming it up towards the head. On this account, persons who are liable to overfulness of blood, ought to be on their guard against such sudden movements.

Wry neck is caused by the undue permanent contraction of one or more of the muscles on one side of the neck. It is remediable by surgical operation. A different form of wry neck, or, at least, of an affection closely resembling it, is the result of paralysis of the muscles on one side, permitting those on the other to draw the head towards their own side.

Stiff neck is the result of rheumatic affection of the muscles. (See CIRCULATION OF THE BLOOD, RHEUMATISM, APOPLEXY, EPILEPSY, FOREIGN BODIES IN AIR-PASSAGES, FOREIGN BODIES IN GULLET, ŒSOPHAGUS, HANGING, TRACHEA.)

NEEDLES. (See PINS AND NEEDLES.)

NECROSIS, *ne-kro'-sis* [Gr. *nekros*], is used as synonymous with mortification or gangrene; but it is more commonly used in surgery to denote the death or mortification of a part or the whole of a bone. Necrosis differs from caries of a bone, inasmuch as in the latter case the vitality of the bone is only impaired, not destroyed, as in the former; in the same way as ulceration of the soft parts differs from gangrene. Necrosis is found in either sex, and at all periods of life, and may be occasioned either by external causes, as fractures, contusions, etc., or by internal or constitutional causes, as a debilitated or deranged habit of body. When a portion of a bone becomes dead, it is regarded as an extraneous substance, and its removal from the part, either by the action of absorbents or by a surgical operation, is absolutely necessary. (See BONE, CARIES.)

NEPENTHE, *ne-pen'-the* [Gr. *ne*, not; and *penthos*, grief], a word adopted from the Greek, signifying a drink calculated to banish the remembrance of grief and enliven the spirits. It is now applied to a particular preparation of opium.

NEPETA CATARIA, *nep'-e-ta ka-ta'-re-a*, catnip or catnep. It is diaphoretic and carminative, antispasmodic, emmenagogue and diuretic. In warm infusion the extract is used in febrile diseases, as a diaphoretic and to allay convulsive action and produce sleep; it is also given as a carminative and antispasmodic in the flatulent colic of children. As an emmenagogue or uterine tonic, it has proved decidedly beneficial in suppression of the menses and painful menstruation, and has likewise been successfully employed in asthma and hysteria.

The fluid extract of catnep and saffron, in the form of a warm infusion, is a very popular remedy in colds and diseases accompanied with a rash to which the young are subject. This agent sometimes proves efficacious in restoring the menstrual flood after other remedies have failed. Dose: of the fluid extract of catnep, 2 to 4 teaspoonfuls; the infusion, 1 to 4 fluid ounces. (See INFUSION.)

NEPHRITIS, OR INFLAMMATION OF THE KIDNEYS, *ne-fri'-tis* [Lat.], is a comparatively rare disease.

Causes.—Exposure to prolonged cold or wet, blows, or other injuries of the loins, and frequently the presence of a renal calculus or stone.

Symptoms.—More or less pain in the region of the kidney, shooting along the course of the ureter to the bladder, pulse frequent, skin hot, bowels costive, nausea and vomiting, with a desire frequently to void urine, which, when passed, is commonly of a deep red color. If the inflammation be caused by a calculus the urine will be frequently bloody, and if an abscess forms, will also contain pus. Acute inflammation of this organ is always attended with a great deal of danger.

Treatment.—If the pain be severe, local bleeding with leeches or cupping, should be practised over the region of the kidney, followed by warm fomentations, and after the evacuation of the bowels by castor-oil or compound jalap powder, opiates may be given every three or four hours until the pain is easy. Blisters are dangerous and ought to be avoided. Medical aid should be promptly summoned. (See KIDNEY; KIDNEY, DISEASES OF THE; URINE.)

NERVE ROOT. (See CYPRIPIEDUM PUBESCENS.)

NERVES. (See NERVOUS SYSTEM.)

NERVOUS DEBILITY. (See NERVOUS DISEASES, DEBILITY, SEXUAL EXCESSES, ETC.)

NERVOUS DISEASES, *ner'-vus* [Lat. *nervosus*; *nervus*, a nerve.] Of the numerous disorders to which the human frame is liable, there are perhaps none which exert so extensive an influence, and are at the same time so little understood, as the whole class of nervous diseases. The nervous system is the presiding and governing power of the whole animal machine. The sufferings and disorders to which it is liable are so varied in their sources, so uncertain in their nature, degree, and combination, are attended for the most part with such a variety of symptoms, that they are not only difficult to describe when observed, but are even more so to recognize when they occur. Connecting as does this system the mental with the physical, the diseases affecting it are not confined to the body, but invade the province of the mind itself. Nervous diseases are properly divided into *structural* and *functional*; the former arising from some morbid change or lesion in the nerve structures. the latter including those in which there is no morbid change or lesion to account for the symptoms.

The Structural may be divided into—(1) diseases of the brain and spinal cord and their coverings or membranes; and (2) diseases of the nerves. The brain and spinal cord are subject to diseases affecting their membranes, their substance, and their blood-vessels. (See BRAIN,

DISEASES OF THE; SPINE, DISEASES AND INJURIES OF THE.) Diseases of the nerves themselves are not numerous. They may arise from inflammation of the delicate fibrous sheath which envelops the nerves, from the development of tumors near the origin or along the course, or amid the ramifications of the nerves, or from the bulbous expansion of the extremities of divided nerves, occurring after amputation, and causing painful stumps.

The functional diseases of the nervous system manifest themselves by irregular, depressed, or exalted conditions of the processes and peculiar functions of the system; viz., sensation or feeling, and motion. They may be enumerated as follows: 1. The numerous varieties of neuralgia, which are independent of disease of the nerves or their centres. 2. The various forms of insanity and general paralysis, where no morbid change occurs in the brain to account for the symptoms. 3. The various exhibitions of mental and moral perversity constituting the diseases known as hysteria, convulsions, paralysis of sensation and motion, etc. 4. Delirium tremens, that derangement of the nervous functions manifested by optical illusions, hallucinations, mania, and muscular trembling, which arises from exhaustion of the nervous power produced by prolonged stimulation by alcohol. 5. Chorea, or St. Vitus's dance, an affection occurring generally in young girls, and consisting in irregular contractions of the voluntary muscles, and which has been graphically described as "insanity of the muscles." 6. The convulsions and paralysis that occur in infancy and childhood, from the irritation of teething, or from gastric and intestinal derangements. 7. Tetanus, or lock-jaw, a rigid spasm of the voluntary muscles, arising from an exalted state of the reflex function of the spinal cord, sometimes spontaneous, but more frequently the result of lacerated wounds. Hydrophobia may be included under this head. 8. The rare and curious derangement known as catalepsy and ecstasy. Epilepsy is sometimes a purely functional, sometimes an organic disease. These several diseases, their *causes, symptoms, treatment, and prevention*, will be found described under their special heads in other parts of this work, which see.

Nervousness is a term usually applied to an indefinite affection—a mixture of the mental and bodily disorder and irritability, generally the product of weakness. The active countryman, the hunter, and those who take much exercise in the open air, do not suffer from irritability, or nervousness, which attacks the sedentary—those who exhaust the brain by too great mental exertion, or the body by dissipation. Females are much more liable to nervous disorder than males, independent of hysterical affection, which constitutes one of the most marked phases of

the malady, and many of the remarks on which apply to the present subject.

In nervous disorder there is usually great susceptibility to external influences; and at the same time mental emotions, whether of joy or grief, fancied or real, exert much influence over the body and its functions. The heart palpitates, the hand trembles, the face flushes under the most trivial excitement; much of this is undoubtedly due to constitutional timidity; but it is also notably increased in debilitated states of the constitution; and those who have never been what is called "nervous," are apt to become so, in some particular conditions of impaired health. The affection, indeed, is very nearly akin to hypochondriasis; it is essentially a disorder of weakness, and is relieved by whatever increases temporarily or permanently the power of the nervous system. The temporary relief to nervous sensations which is afforded by alcoholic stimuli, is very apt to lead those who suffer from them to put too much trust in, and to resort too habitually to the use of those palliatives—a practice which must be followed by pernicious consequences; sometimes, too, opiates are habitually made use of, and are no less injurious.

Undoubtedly, when properly employed, alcoholic stimuli, and even opium, are valuable in the treatment of nervous disease, but they must never be substituted for more permanent means of invigoration, particularly regular and sufficient exercise in the open air, on foot or horseback, good nourishing diet, with a sufficient amount of animal food, attention to the bowels, bathing, tonics, etc. The producing cause, whether excessive mental exertion, sedentary employment, late hours, or excess of any kind, must of course be modified as much as possible. The shower-bath is often recommended, and often useful in these affections, but some persons cannot bear the shock; when this is the case, the cold or tepid douche down the back does much good, particularly if there be any tenderness of the spine on pressure, a fact which should always be investigated in those who suffer much from nervous disease—it very commonly exists and is overlooked. When the tenderness is at all marked, it will require special treatment, by counter-irritation, etc.; but this, as well as the treatment of aggravated cases of nervous disorder, will be best managed under the care of a medical man. In addition to the regulation of the bowels by the warmer purgatives, or by injection, quinine and the preparations of iron are the most generally useful remedies; tincture of valerian, sal-volatile, and stimulant carminatives may be used as palliatives during an aggravated attack, but should be sparingly resorted to. Iron should not be used without medical sanction by those having a tendency to constipation. (See COSTIVENESS, IRON.)

Besides attention to the state of the body, it is of the utmost importance to strive to maintain a calm and uniform state of mind; one not easily disturbed by the crosses and accidents of life. The mind and the body reciprocally act upon each other and promote each other's health. The elements of mental discipline—which, if steadily pursued, conduce not only to health of mind and body, but also to enduring comfort and happiness—are “the subjugation of gross appetites, the subordination of all turbulent or violent moral and mental emotions; the cultivation of the gentle and contemplative feelings, best cultivated in domestic life, and in refined social intercourse; and the regular but moderate application of the intellectual powers to some definite object or set of objects worthy of pursuit.” (See NERVOUS SYSTEM AND NERVES, NEURALGIA, INSANITY, MENTAL EXERCISE, HYSTERIA, CONVULSIONS, PARALYSIS, DELIRIUM TREMENS, SAINT VITUS'S DANCE, TETANUS, LOCK-JAW, HYDROPHOBIA, CATALEPSY, APOPLEXY, EPILEPSY, MELANCHOLY, HYPOCHONDRIASIS, SEMEN, SEXUAL EXCESSES, DEBILITY, HABIT, FOOD, DIET, DIGESTION, AIR, EXERCISE, BATHS AND BATHING, TONICS, EXCITANTS, RECREATION, HEALTH, LONGEVITY, ETC.)

NERVOUSNESS. (See NERVOUS DISEASES.)

NERVOUS SYSTEM AND NERVES. The nervous system embraces that portion of the organism of man by which the mind is brought into connection with the physical world. It consists of two portions or constituent systems—the *cerebro-spinal*, and the *sympathic* or *ganglionic*.

The *cerebro-spinal system* includes the brain and spinal cord, with the nerves proceeding from them, and is denominated by Bichat the nervous system of animal life. It includes those nervous organs in and through which are performed the several functions with which the mind is more immediately connected, as those relating to sensation and volition.

The *sympathetic* or *ganglionic system*, named by Bichat the nervous system of organic life, consists of a chain of ganglia extending from the cranium to the pelvis along each side of the vertebral column, and from which nerves with ganglia proceed to the viscera in the thoracic, abdominal, and pelvic cavities. (See GANGLION.)

The several organs which constitute the nervous system are composed of two distinct substances, which differ from each other in density, color, minute structure, and chemical composition. They are the *vesicular* and *fibrous* matter, the former being also called the gray or cineritious substance, the latter the white or medullary. The former is distinguished by its dark reddish-gray color and soft consistence, and is found usually collected in masses and mingled with fibrous structure, as in the brain, spinal cord, and the several ganglia. These masses are termed nervous

centres, being supposed to be centres in which nervous force is generated or propagated. The fibrous nerve-substance, besides entering into the composition of the nervous centres, forms alone the nerves or cords of communication which connect the various nervous centres with the different tissues and organs. The vesicular nervous substance is composed, as its name implies, of vesicles or corpuscles, commonly called nerve or ganglion corpuscles, containing nuclei and nucleoli, the vesicles being imbedded in a sort of matrix of granular substance. Each vesicle consists of an exceedingly delicate membranous wall, enclosing a finely granular material, part of which is occasionally of a coarser kind, and of a reddish or yellowish-brown color. The nucleus is vesicular, and much smaller than the vesicle. The nucleolus, which is enclosed within the nucleus, is also vesicular, of minute size, and peculiarly clear and brilliant.

The nerve-vesicles vary in shape and size; some are small, spherical, or ovoidal, with an uninterrupted outline; others are more or less angular or irregular in form, or have one or more long processes issuing from them. The fibrous nervous matter consists of two different kinds of nerve-fibres, which are distinguished as the tubular or white fibre, and the gelatinous or gray fibre. In most nerves these two kinds are intermingled, the tubular fibres being more numerous in the nerves of the cerebro-spinal system, the gelatinous predominating in the nerves of the sympathetic system.

The nerve-fibres vary in size, being largest within the trunk and branches of the nerves, where they measure from $\frac{1}{2000}$ to $\frac{1}{3000}$ of an inch, and becoming gradually smaller as they approach the brain and spinal cord, and usually, also, in the tissues in which they are distributed. In the gray matter of the brain and spinal cord they seldom measure more than $\frac{1}{10000}$ to $\frac{1}{14000}$ of an inch.

The tubular fibres, in a perfectly fresh state, present the appearance of simple membranous tubes, perfectly cylindrical, and contain the proper nerve-substance. This is a transparent, oil-like, and apparently homogeneous material, but, shortly after death, it undergoes a change, and has the appearance of being composed of two different materials; the internal or central part, occupying the axis of the tube, becoming grayish, while the outer or cortical portion becomes opaque, and dimly anular or grumous, as if from a kind of coagulation.

The gelatinous fibres constitute the main part of the trunk and branches of the sympathetic nerves, and are intermingled in various proportions in the cerebro-spinal nerves. They are flattened, soft, and homogeneous in appearance, and, when collected together in great numbers, they present a yellowish-gray color. They differ from the tubular

fibres in being only one-half or one-third of their size, in the absence of the rounded form, their apparently uniform structure, and their yellowish-gray color.

The nerves which proceed from the cerebro-spinal axis, or the nerves of animal life, are distributed to the organs of the senses, the skin, and the muscles; and the sympathetic or ganglionic nerves are distributed chiefly to the viscera and blood-vessels, and are termed the nerves of organic life. The cerebro-spinal nerves consist almost exclusively of the tubular nerve-fibres, the gelatinous fibres existing only in very small proportion. Each cerebro-spinal nerve consists of numerous nerve-fibres collected together and enclosed in a membranous sheath. A small bundle of primitive fibres so enclosed is called a *funculus*; and if the nerve is of small size, it may consist only of a single funculus; but if large, the funculi are collected together into larger bundles or fasciculi, and are bound together in a common membranous investinent termed the sheath.

Nerves, in their course, subdivide into branches, and these frequently communicate with the branches of a neighboring nerve; but in these communications the nerve-fibres never coalesce, but merely pass into the sheath of



THE CEREBRO-SPINAL SYSTEM.

the adjacent nerve, become intermixed with the nerve-fibres, and again pass on to become blended with the nerve-fibres in some adjoining fasciculus. Every nerve-fibre in its course proceeds uninterruptedly from its origin at a nervous centre to its destination, and, however long its course, there is no branching or anastomosis, or union with the substance of any other fibres. The communications which take place between two or more nerves form what is called a *plexus*, in which the component nerves divide, then join, and again subdivide in such a complex manner that the individual fasciculi become most intricately interlaced. As the small bundles of nerve-fibres approach their final and

minutest distribution in the several tissues, they commonly form delicate "terminal plexuses." The primitive fibres appear to terminate in various ways, as in loops, in plexuses, by branching, or by free ends. The central termination of a nerve-fibre is that in connection with a nerve-centre; the peripheral termination, that in connection with the different organs and tissues. The sympathetic nerves consist of tubular and gelatinous fibres, intermixed with a varying proportion of filamentous areolar tissue, and enclosed in a sheath of fibro-areolar tissue. The tubular fibres are for the most part smaller than those composing the cerebro-spinal nerves, and their double contour is less distinct.

The nerve-fibres both of the cerebro-spinal and sympathetic system convey impressions of a twofold kind—the one the impressions made upon their peripheral extremities or parts of their course to their nervous centres; the other the impressions from the brain and other nervous centres to the parts to which the nerves are distributed. For this twofold office two distinct sets of nerve-fibres are provided—the *sensitive*, called also the *centripetal*, or *afferent* nerves, which convey impressions from the periphery to the centre; and the *motor*, *centrifugal*, or *efferent* nerves, which transmit central impulses to the extremities. But, with this difference in function, there is no apparent difference in the structure of the nerve-fibres by which it might be explained. Nerve-fibres appear to possess no power of generating force in themselves, or of originating impulses to action; but they possess a certain property of conducting impressions, which, however, is never manifested till some stimulus is applied. This property of nerves is called excitability, irritability, or nervous force, and one of its peculiarities is the rapidity with which it travels along the nerve-fibres. In many respects it resembles electricity, but the analogy between the two does not amount to identity.

All stimuli, internal or external, chemical, mechanical, or electrical, when applied to sensitive nerves, produce sensations; and when applied to motor nerves, excite contractions. There are certain kinds of nerves, however, the irritation of which produces effects that are entirely peculiar to themselves; thus, irritation of the optic nerves causes the sensation of light; of the auditory nerve, of sound; and of the olfactory or gustatory nerves, of smell and taste. It is a remarkable fact that, whatever part of a sensitive nerve be irritated, whether it be the centre, middle, or extremity, the same sensation will be produced. (See NERVOUS DISEASES, BRAIN, GANGLION.)

NETTLE, *net'-tl* [Ang.-Sax. *nete*, *netle*]. The common nettle belongs to a tribe of plants which includes the hop and others used as food, and is itself eaten when cooked, as a wholesome, almost as a medicinal, article of diet, in some parts of the country. It is diuretic.

The fresh juice of the nettle has been highly recommended in cases of internal hemorrhage, particularly from the lungs and womb. The dose, 1 teaspoonful three times a day. (See HEMORRHAGE.)

NETTLE-RASH. (See SKIN, DISEASES OF THE.)

NEURALGIA, *nu-ral'-je-a* [Gr. *neuron*, a nerve, and *algos*, pain], is an increased and perverted sensation in a nerve, arising from some disease affecting the function or structure of the nerve or its centres. There are three principal varieties: 1, Neuralgia of the head and face, commonly called *Tic douloureux*; 2, Intercostal neuralgia or pleurodynia; and 3, Sciatica or neuralgia of the sciatic nerve.

Causes.—It may be brought on by many causes of a trivial nature; a current of air, a slight touch, or the exertion of speaking or eating may give rise to one of its paroxysms. It is more often met with in those who are delicate, pale and weak, and who have been reduced by some long drain upon the system; it frequently attacks poor women who have been suckling their infants for some time past. It not unfrequently accompanies disorders of the digestive organs and affections of a rheumatic character. Sometimes it can be traced to the influence of malaria and at others to some local irritation, such as pressure from diseased bone, or tumors in the course of the nerve affected.

Symptoms.—The principal symptom is a severe pain experienced in the course of a nerve or its branches, liable to frequent paroxysms and to intermissions likewise. No inflammatory manifestations, properly speaking, accompany neuralgia; no redness, heat, or swelling, though in certain cases, one or more of these may be superadded. The attacks of pain may occur at intervals of a few seconds, or so long a period as a day or two, or even longer, may elapse. They may recur with marked regularity, coming on and ceasing at corresponding periods of each day; or the attacks and the cessation may be alike irregular.

Treatment.—The treatment naturally divides itself into external and internal. Certain applications tend to mitigate the pain of severe attacks, such as warm fomentations, laudanum, belladonna, tincture of aconite, chloroform liniment and blistering fluid. Great relief is often obtained by the subcutaneous injection of morphia by the hypodermic syringe; of course this can only be done by a medical man. The internal treatment must vary according to the cause. If the patient be weak and anæmic, the following will be found useful:

Take of Sulphate of iron	Twelve grains.
Sulphate of quinine	Twenty grains.
Dilute sulphuric acid	One dram.
Compound tincture of lavender	One dram.
Pure water	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every four hours; while taking the above the

bowels must be regulated by a couple of the compound colocynth pills at bed-time, every third or fourth night.

If the disease be due to the influence of malaria, quinine must be given in full doses.

Take of Sulphate of quinine.....	Twenty grains.
Tincture of orange peel.....	One dram.
Dilute sulphuric acid.....	Forty drops.
Pure water.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls three times a day.

If the disease depends on, or is connected with rheumatism, the following will be found useful:

Take of Iodide of potassium.....	One half dram.
Bicarbonate of potash.....	Twenty grains.
Wine of colchicum.....	One dram.
Pure water.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls three times a day.

Muriate of ammonia, *sal ammoniac*, in doses of 10 grains, three times a day, has frequently proved of service in neuralgia. When the cause of the pain can be traced to a carious tooth, the offending member must be extracted. In some cases where medical treatment has failed, surgery has been more successful, and the trunk of the painful nerve has been divided with benefit to the wearied sufferer.

Preventive treatment.—It is important to maintain the skin in a healthy state, and for this purpose baths and warm clothing are to be used; flannel should always be worn next the skin; appropriate out-door exercise must be indulged in, but cold and dampness be scrupulously avoided. A nourishing diet should be observed, tea and coffee, and much saccharine matter avoided, and milk and cocoa permitted. Attention to these simple matters will prevent many an attack of this exceedingly painful disorder. (See SCIATICA, RHEUMATISM, NERVOUS SYSTEM AND NERVES, COLD, DAMP, ACONITUM, CHLOROFORM.)

NEUTRAL MIXTURE, *nu'-tral* [Lat. *neutralis*, neuter]. This is a solution of the citrate of potash. It is a valuable refrigerant, acting mildly on the skin, bowels and kidneys. It is very useful in irritability of the stomach, and forms a very grateful draught for fever patients. The dose is a tablespoonful diluted with as much water, repeated five or six times a day. The solution may be made by saturating lemon-juice with bicarbonate of potash and filtering. A similar preparation may be given as an effervescent drink by forming solution of lemon-juice and water, of each $\frac{1}{2}$ an ounce; and another by dissolving bicarbonate of potash, $1\frac{1}{2}$ drams in 4 ounces of water. The two solutions are to be mixed and the whole to be drunk during effervescence.

NEUTRAL SALTS, are compounds of an acid and an alkali, in

which the two constituents completely neutralize one another; the resulting compound having neither acid nor alkaline properties. (See SALTS.)

NEW ENGLAND STATES, CLIMATE OF. (See CLIMATE.)

NEW JERSEY TEA. (See CEANOTHUS.)

NICOTIANA, *ne-ko-she-a'-na*, a genus of the Nat. order *Atropaceæ*. The species and varieties supply the different kinds of *tobacco* now in general use in some form or other all over the globe. Most of the tobacco of commerce is yielded by the species *N. tabacum*, a native of the warm parts of America, but now cultivated in various countries. The Shiraz or Persian tobacco is obtained from *N. persica*; the Syrian and Turkish from *N. rustica*; and Cuba and Havana from both *N. tabacum* and *repanda*. (See TOBACCO, NICOTINE.)

NICOTINE, OR NICOTIA. *nik'-o-tin*, a volatile alkaloid contained in the tobacco plant (*Nicotiana tabacum*), in which it occurs in combination with malic and citric acids. It is a limpid, colorless, oily liquid, with an irritating and powerful odor of tobacco. It is extremely poisonous, a single drop being sufficient to poison a large dog. (See NICOTIANA, TOBACCO, ALKALOIDS.)

NIGHT, *nite* [Ang.-Sax. *niht*, *naht*]. The period of darkness consequent upon the absence of the sun's rays is one which unquestionably exerts considerable influence over the states and health of the human body. The effect of light upon the body, and the injurious consequences of its withdrawal, has already been treated of in the article LIGHT, which see. The reader is also referred to the articles SLEEP, EARLY RISING, BREAKFAST, etc.

NIGHT AIR. (See AIR.)

NIGHT-BLINDNESS, *nite'-blind-nes*, is a peculiar affection of the eye, in which the patient sees very well during the day, but becomes blind as night approaches. It is generally met with in warm climates, and seems to arise from the excessive stimulus to which the eye is exposed during the day by the strong light in warm countries. It usually gives way to mild antiphlogistic treatment, purging, and blistering on the temples, but if not treated in time, it usually terminates in amaurosis. (See AMAUROSIS, EYE, BLINDNESS.)

NIGHT-BLOOMING CEREUS. (See CACTUS GRANDIFLORUS.)

NIGHTMARE. (See SLEEP, DREAMING.)

NIGHTSHADE, DEADLY. (See ATROPA BELLADONNA.)

NIGHT-SWEATS. (See CONSUMPTION, HEMATOXYLON.)

NIPPLES, *nip'-plz* [Ang.-Sax. *nypele*]. The nipple of the female breast is chiefly composed of tubes which give passage to the milk. During pregnancy, and at childbirth, it ought to become more prominent

and increased in size; but, sometimes, from the pernicious pressure of corsets in early life, it has become so imbedded in the breast that it cannot be developed; consequently, when the time of suckling arrives, it is perfectly impossible for the infant to seize it. This is a state of things which often gives much trouble, causes the individual much pain and suffering, and not unfrequently lays the foundation of abscess of the breast. When this condition of the nipple exists, every effort should be made, during the time of pregnancy, to get it into a better and more prominent state, by means of the glasses adapted to the purpose, or by suction exerted by the mouth of an adult; after childbed, the same means should be assiduously practised. The greatest suffering, however, connected with the nipple during nursing, is in consequence of its becoming excoriated and chapped. This may be greatly prevented, if, during the latter months of pregnancy, trouble be taken to bathe the nipples, night and morning, with a mixture of brandy and water, 1 part of the former to 3 or 4 of the latter. When the nipples are inclined to become sore from nursing, which is generally within the first fortnight, the best, and, indeed, almost a certain remedy, is the tincture of catechu. Prepared nipple shields, etc., have been used to cover the nipple in such cases, but they do not answer well, and it requires a very strong child to draw the milk through them. If the nipples are harsh and dry on the surface, glycerine will probably be found of more service than catechu; and if they do not heal up under these or similar applications, the child must be kept from sucking for a short period, the breasts being emptied by other means, and the milk thus drawn given to the child.

The late Sir Astley Cooper's favorite lotion in sore nipples was composed of borax, 1 dram; spirit of wine $\frac{1}{2}$ ounce; and water (soft) sufficient to make up the $\frac{1}{2}$ -pint lotion. (See BREAST, PREGNANCY, CHILDBED.)

NITRATE OF SILVER, LUNAR CAUSTIC, *ni'-trat*. The nitrate of silver is made by dissolving silver in strong nitric acid. It crystallizes in square, anhydrous, colorless tables, and dissolves in an equal weight of water. For convenient use as a caustic, nitrate of silver is cast in the form of small cylindrical sticks, which are carried generally in silver or silver gilt holders, the best having a "quill" of the metal called palladium, to hold the caustic, it being found that in time the nitrate of silver acts chemically upon the metallic silver of the holder. Cheaper holders of glass, gutta percha, etc., are made. When nitrate of silver in the least degree moistened touches the body, it acts as a corrosive, and on the skin leaves a deep brownish or black stain, which is only removed as the outer skin is worn off, and renewed in course of time; or, if it is applied early, by hydriodate of potash. If, however, the caustic be rubbed on the skin, it will probably cause blistering.

Medicinally it is tonic and antispasmodic, and is recommended in *chronic diseases* of the *stomach*, attended with pain and vomiting, but of course must be used with caution. Dose, $\frac{1}{6}$ to $\frac{1}{3}$ of a grain: 2 to 4 grains to an ounce of water is employed for lotions or injections. It is applied externally to wounds, ulcers, etc. The modes of using nitrate of silver, being pointed out in the different articles, such as erysipelas, whitlow etc., it is unnecessary to repeat them here. (See SILVER.)

NITRATES, *ni'-tratz* [Lat. *nitras*], a term applied to a combination between nitric acid and a base. Nearly all the metallic oxides being dissolved by nitric acid, a numerous class of nitrates is thus produced, which, if prepared with heat and with excess of acid, generally contain the metal at its maximum of oxidation. The nitrates are all decomposed by a red heat; they give off oxygen and nitrogen, either separate or combined, and the metallic oxide ultimately remains. The nitrates of the different substances will be found noticed under their special names.

NITRE, OR SALTPETRE, *ni'-ter*, nitrate of potash. (See POTASH.)

NITRE, POISONING BY. (See ALKALIES, POISONING BY.)

NITRE, SWEET SPIRITS OF. (See ETHER, NITROUS OR NITRIC.)

NITRIC ACID, OR AQUA-FORTIS, *ni'-trik as'-id*, is one of the most powerful of the mineral acids, and is strongly corrosive; it is obtained from saltpetre by distillation with oil of vitriol. Pure nitric acid is composed of nitrogen and oxygen gases in the proportion of one of the former to five of the latter, and should be colorless: it is usually met with in the shape of a light straw color and contains water.

Nitric acid is used externally by surgeons as a caustic, or rather as a corrosive; internally it is employed as a tonic, especially in some forms of dyspepsia and liver disorder, the dose 2 to 8 drops well diluted with water. Diluted nitric acid, composed of 1 part of the common commercial acid and 9 parts of water, is used as more convenient than the strong acid; of this the dose is from 20 to 30 drops.

Poisoning by nitric acid or aqua-fortis sometimes occurs, for treatment the reader is referred to POISONS AND THEIR ANTIDOTES. (See NITROGEN.)

NITROGEN, *ni'-tro-jen* [Gr. *nitron*, nitre; *gennao*, I generate]—symbol N; equivalent, 14; density, 14; specific gravity, 0.9713—a transparent, permanent, colorless gas, well known as one of the constituents of the atmosphere which contains volumetrically about 78 per cent., mechanically united with 22 per cent. of oxygen. Although characterized by its inactivity when in a free state, it enters into combination with the other elements, forming compounds possessed of the most energetic properties. With hydrogen it forms ammonia; with oxygen, nitric acid; with carbon, cyanogen; with carbon, hydrogen and other elements, an almost

infinite number of bodies, known as the vegetable and artificial alkalis, such as quinine, morphia, aniline, etc. Besides these, it is an essential constituent of the proximate principles of animal and vegetable bodies; such as albumen, fibrine, caseine, etc. It was at first called azote, from its incapability of supporting life; but Chaptal named it nitrogen, from its entering into the composition of nitre, nitric acid, etc. It is readily obtained in a variety of ways by abstracting the oxygen from the air. It is incombustible, and does not support combustion. It may be breathed with impunity as far as itself is concerned, but destroys life from the want of oxygen. Its compounds with the metallic elements are of little importance, but the compounds it forms with the non-metallic elements are most numerous and important. With oxygen nitrogen forms five well-defined compounds— NO , nitrous oxide, or protoxide of nitrogen; NO_2 , nitric oxide, or deutoxide of nitrogen; NO_3 , nitrous acid; NO_4 , peroxide of nitrogen; NO_5 , nitric acid. The first of these, nitrous oxide, is commonly known as laughing gas, from the exhilarating effects it produces on the human system when breathed. It was discovered by Priestly in 1776, and minutely investigated by Davy. It is a transparent, colorless gas, soluble in three-fourths of its bulk of cold water, and has a specific gravity of 1.527. It is neutral and non-combustible, but supports combustion with great energy. Of all the compounds of oxygen and nitrogen, nitric acid is the most important; its power of forming useful compounds with most of the bases, and its powerful oxidizing properties, render its uses very numerous in the laboratory. It was known to the alchemists under the name of *aqua-fortis* but its composition was first made out by Cavendish. In its most concentrated form, nitric acid contains one equivalent of water, and has a specific gravity of 1.52. It is a colorless limpid, powerfully corrosive, liquid, boiling at 184° Fahrenheit, and freezing into a buttery mass at -40° . Nitric acid combines with one equivalent of the various bases to form neutral salts, known as nitrates. For its medicinal uses the reader is referred to the article NITRIC ACID. (See also AIR, BLOOD, FOOD, RESPIRATION, AMMONIA, LAUGHING GAS, ETC.)

NITRO-MURIATIC ACID, OR AQUA-REGIA, *ni'-tro-mu-re-at'-ik*, as it has been called from its power of acting upon gold, is used in medicine as a tonic, and it is a very valuable one, but like other poisonous medicines, must be used with caution. It may be prepared sufficiently well by mingling equal measures of nitric and muriatic acids in their undiluted condition, and allowing them to stand for a few minutes before water is added. The dose is 4 to 8 drops, well diluted in water.

NITROUS, OR NITRIC ETHER. (See ETHER, NITROUS OR NITRIC.)

NITROUS OXIDE. (See LAUGHING-GAS.)

NOCTURNAL DISCHARGES, *nok-tur'-nəl* [Lat. *nocturnus*; *noctu*, by night], of seminal fluid are apt to cause much mental uneasiness and physical debility in those, generally young men, who are the most frequent subjects of them. They are probably in most cases the result of criminal self-indulgence and venereal excesses, from which those thus affected should rigorously abstain. Unless very excessive, there is no reason that they should be regarded in the almost morbid way they often are. Abundant exercise, cold bathing, either general or local, and where there is not much debility, the disuse of alcoholic stimuli, the avoidance of whatever may tend to excite the secretion in question, and the use of the tincture of muriate of iron, in 10 or 15 drop doses twice or thrice a day, will, in most cases, effect a cure. It is of great importance, along with these measures, to keep the bowels perfectly open, and for this purpose, gentle salines, senna, castor-oil, sulphur and magnesias, from $\frac{1}{2}$ to 1 teaspoonful of each for a dose, in milk, aperient mineral waters, or cool injections, are preferable to pills which contain aloes.

In such cases, one caution is of the highest importance: avoid the advertising quacks. The painfully nervous state of the mind in those who suffer from the above affection, renders them most timidly credulous, and this fact is made use of by designing knaves—first to frighten, by attaching exaggerated importance to every slight symptom, and then to fleece those they have thus gulled. Persons who are affected with the disorder in question, by confiding in some medical man, may speedily be relieved. (See ONANISM, SEMEN, IMPOTENCE, STERILITY, NERVOUS DISEASES, DIET, EXERCISE, MINERAL WATERS, DAMIANA, BUCHU, SALVIA OFFICINALIS, STRYCHNOS NUX VOMICA.)

NODE, *node* [Lat. *nodus*], is an enlargement of a bone, caused by inflammation of the bone itself, or of its covering “periosteum.” The shin bone is very liable to the disease, often in consequence of venereal affection. It is attended with little pain; but sometimes the pain is considerable, particularly in the night time. The treatment in general consists in attention to the general health, tonics, alteratives, and the iodide of potassium. Whilst active inflammation of the part is present, perfect rest, leeches, fomentations, poultices, and other remedies, internal and external, recommended in inflammation generally, may be used, and afterwards blisters. A medical man should be called in. (See SYPHILIS.)

NOISES IN THE EAR. (See EAR, DISEASES OF THE.)

NOMENCLATURE. CHEMICAL. (See CHEMISTRY.)

NORTHWESTERN STATES, CLIMATE OF. (See CLIMATE.)

NOSE, *noze* [Ang.-Sax. *nose*, *næse*; Lat. *nasus*], is the organ of smell

in vertebrated animals, and in the three highest classes is connected with the respiratory function. In man, the nose, anatomically considered, consists of two large cavities, called nostrils (*nares*), a right and a left, formed by the bones of the face, and separated from each other by a perpendicular flat partition, called the *septum narium*. Each nostril is divided by the spongy bone into chambers, termed the *superior*, *middle*, and *inferior meatus*. Besides smell, the nose has ordinary sensation, like other parts of the face, depending on filaments of the trifacial or fifth pair of cerebral nerves. The external prominent part of the nose, which gives character to the feature, is composed of several cartilages, connected to the bones and to each other by strong fibrous tissue, sufficiently firm to preserve the shape of the organ, and so elastic and flexible as to permit the expansion and contraction of the nostrils in respiration. The nose is not only the organ of smelling, but serves also as the chief passage of the air into the lungs, and has a considerable influence upon the voice.

Fracture of the bones is not uncommon, and, like other accidents to the organ, is liable to be followed by much bleeding. If the nature of the accident is indicated by the alteration in shape and mobility of the parts, etc., the nose may, if a medical man is not at hand, be restored somewhat to shape by a bystander, the fingers on the outside being assisted, if requisite, from within, by means of a firm quill, or piece of wood covered with lint, passed up the nostril. After the displacement has been rectified, the person should be kept perfectly quiet, the injured parts covered with cloths dipped in cold water, and if habit of body is full, a sharp purgative administered, for the possibility of the inflammation excited extending to the brain must not be forgotten.

Bleeding from the nose. (See HEMORRHAGE.)

Foreign bodies in the nose.—The nose, like the ear, is very liable to be made by children the receptacle for anything that will pass into it—beans, buttons, stones, or the like. When the things introduced swell, by absorption of moisture, there is often considerable difficulty in their extraction; sometimes they have been in the nose, unnoticed, for days and weeks, and are not discovered until inflammation of, and perhaps discharge of matter from, the lining membrane attracts attention, a reason, when such symptoms occur in a child, for always examining the nose for the presence of foreign bodies. The extraction of a foreign body from the nostril is always best done by a surgeon; others are very apt to make the matter worse by pushing the foreign body further in. If, however, circumstances render it desirable to attempt the extraction without waiting, it must be done by means of the flat end of a probe, or of a bodkin, bent about the eighth of an inch, nearly at right angles with

the rest of the instrument, which bent end being carefully passed beyond the body, must be used as a hook to draw it out. Sometimes, when the foreign body is not very far in the one nostril, if that on the opposite side be closed, and the child can be made to blow forcibly through the other, the obstruction will be shot out.

The lining membrane of the nose is liable to become inflamed and ulcerated. In a mild case, washing with warm water—if necessary, by means of a syringe—containing a little carbonate of soda in solution, will be of service. It is a common popular error to suppose that the nose communicates with the brain. It is sufficient to remark that it does not.

NOSE, BLEEDING FROM. (See HEMORRHAGE.)

NOSE, FOREIGN BODIES IN THE. (See NOSE.)

NOSOLOGY, *no-sol'-o-je*, the scientific classification of diseases.

NOSTALGIA, OR HOME-SICKNESS, *nos-tal'-je-a* [Gr. *nosteo*, I return; *algos*, pain], a term used to denote an intense longing for return to one's native country; a disease not unfrequent among young soldiers, and those whom circumstances have placed in foreign climes. The Swiss are particularly subject to this affection. This vehement home-sickness is attended with melancholy, loss of appetite, and want of sleep. (See APPETITE, MELANCHOLY, SLEEP, TONICS, BITTERS.)

NOSTRUM, *nos'-trum* [Lat. our own], is a term applied to quack medicines, the composition of which is kept a secret. (See QUACKERY.)

NOURISHMENT. (See ALIMENT, DIGESTION, FOOD, NUTRITION, ETC.)

NOXIOUS AIR. (See AIR, MALARIA, DISINFECTANTS, HOUSES, VENTILATION.)

NURSE, NURSERY, NURSERY MAIDS, *nurse* [Ang.-Sax. *norice*; Lat. *nutrix*; *nutrio*, to nourish].

Wet-nurse.—The subject of wet-nursing, and the objections to it, have already been alluded to under article CHILDREN. When a wet-nurse is absolutely necessary and resolved upon, the selection is best left to the medical man, who will endeavor to procure one whose confinement was as nearly as possible at the same time as that of the mother's, whose child she is to nurse; he may at the same time avail himself of the aid of the microscope in examining the milk, if there is much power of choice. The following characteristics of a good wet-nurse are laid down by M. Devergie, who, in 1838, had the responsibility of choosing a nurse for the infant Count of Paris. "A good nurse should be from twenty-five to thirty years old, strong in constitution, full-chested, of sanguine lymphatic temperament, brown-haired, having white healthy teeth and well-colored lips. She should have pyriform breasts, with well-formed nipples, and without too much development of veins. The milk drawn in to spoon should be white, with a slight bluish tint, its

taste saccharine; it should not be too thick." In scrutinizing, however, the physical qualifications of a wet-nurse, it is of the highest importance that the mental ones—disposition, temper, etc.,—should not be overlooked; for, independent of the influence which may be exerted upon the infant by the psychical qualities of the being from which it draws its first nourishment, we know that the emotions of the mind always do affect the milk in some peculiar way, and cause injury to the child—nay, death itself from convulsions, has been the consequence to an infant whose mother had, shortly before nursing it, given way to violent passion. The late Sir Astley Cooper held the opinion, that the anxiety of a mother for her child during teething, by acting on the milk, gave it an aperient, and therefore, a salutary property. Again, all nurses well know how much the quality of their milk is affected either by food or medicine, and this is another reason why a wet-nurse should be selected, if possible, who is likely to have sufficient self-control to regulate her diet. The difficulty in this, is one, at least, of the objections to wet-nurses, especially if kept in the houses of their employers, where they are tempted with unaccustomed and richer food and drink.

The return of menstruation, in a nurse, is always an objection, although perhaps not an absolute one, if merely an occasional occurrence; the child, however, should be withdrawn from the breast during the period, and managed as if nursed by hand (see CHILDREN), the breasts being kept duly emptied by artificial means. (See CHILDBED.) In the event of slight indisposition in the nurse, the same plan may be pursued. Perhaps no diet is more suitable for a wet-nurse than one which embraces a large proportion of milk and farinacea, with a moderate proportion of animal food, and much mischief is often done to both nurse and infant, under the idea that stimulant is required during nursing, from the very first. Strong healthy women never require it, and are better without it; some derive benefit from a moderate allowance of malt liquor, after the first two or three months, whilst others, who are deficient in vital and digestive power, may be benefited by it from the first. Medicines taken by the nurse may be so directed as to benefit the child, particularly such aperients as castor-oil, senna, etc. Saline aperients and acids generally cause griping. (See WEANING.)

Nursery maids are, unfortunately, as a rule, by no means a very trustworthy class of persons, and yet, both physically and morally, how much the present and future welfare of our children depends upon them. It is most difficult, nay, almost impossible, to meet in one person with that rare combination of qualities which would constitute a good nursery maid. She should have sprightliness and liveliness enough to amuse the children, with sufficient gravity and discretion to keep both herself and

them within the bounds of prudence; she should have good nature combined with firmness; good sense, and sufficient education to enable her to detect and repress erroneous ideas and principles in the minds of her little charge: scrupulously clean should she be, and true and honest; she cannot attempt deception, or concealment of anything from her mistress, without making the child deceptive too; her thoughts, like her language, must be pure, or she will inevitably poison the springs of infant innocence; she should be orderly and methodical in her habits; no gossip; no believer in old fables and ridiculous stories of ghosts and the like. Some children are ready to go into fits if left in the dark, because they have been told foolish stories about "bogies," witches and the like.

The treatment of children in the nursery should never be left altogether to servants, a mother's superintendence is always required; and if circumstances preclude the possibility of this, some near relative or staid elderly person, who has herself known and felt the cares and responsibilities of maternity should superintend the arrangements. Some mothers there are who voluntarily abandon this sacred charge, and entrust their children to servants. (See CHILDREN.)

Nurseries.—With regard to nurseries, we may just observe here that the aspect of such is of the greatest importance, as the health of the inmates depends much on this; there should be plenty of light and pure air (see VENTILATION, AIR, ETC.) The nursery should be at or near the top of the house, and the children's bed-room on a level with it; the windows should be opened at all convenient seasons, and may be left so during the summer nights, provided there are no sleepers in it, which there never should be if it is avoidable. A crowded nursery will always endanger the health of the children, especially if it be not thoroughly ventilated. A very young infant should not be taken into a nursery where there are well-grown children, as these will, it is likely, be rude and noisy, so as to greatly disturb it, and they too will be annoyed and their pleasures interfered with by its crying.

Nurses for the sick.—Really good sick-nurses, who understand their business, are difficult to meet with, especially in the country; and it is to be lamented, when it is considered how much of the success of the best directed treatment depends upon its being carried out and seconded by good and judicious nursing. A very young nurse is not desirable, and, perhaps, few are fit for the office under thirty years of age; but a very aged one is still more objectionable, when the infirmities, and often the irritabilities of age have come on: after sixty, this is too often the case.

It is sufficiently obvious, that those whose duty it is to wait upon the sick, to suffer the necessary confinement, loss of rest and other depressing influences, should themselves have health as good as possible, and

be possessed of strength and stature sufficient to enable them to give all requisite aid in lifting, etc. Activity, and order, and cleanliness, both in their own persons and about those they wait upon, are indispensable. All bad habits, such as snuffing, smoking, and it perhaps must be added drinking, are insuperable objections; likewise the habit or necessity of making unusual noises, such as humming, or habitual cough. Neither should nurses be great talkers: some patients are much annoyed with the garrulousness of their attendants. A nurse ought to be a light sleeper, awake to the slightest call or movement, and no snorer; a light mover about a room.

A good and obliging temper is of course highly desirable; equally so, sufficient good judgment in the management of the whims and peevishness of the sick, and to direct any little conversation into proper channels, avoiding all narrations of previous experiences, which are very apt to be indulged in.

Some amount of education is absolutely necessary—especially the ability to read writing. Without it, the most serious mistakes may, and have occurred.

In enumerating the qualifications of a good nurse, it is not expected that all these are to be found combined and in perfection in one or every individual, but some approximation, at least, to them should be attempted. Of course in addition to the natural qualifications, experience in the management of the sick is more or less requisite, and the more skilled the nurse in the performance of the needful operations of the sick-room, of course the more valuable. Whilst laying down the qualifications for good nurses, one word may be said to those who employ them. If active, cheerful attendance is required, it must not be forgotten, that this is almost physically impossible, if a nurse be kept day after day, and night after night, confined in a close sick-room. Even if averse to it, both for her own sake, and for that of the patient, a nurse ought to be made to be out in the open air for exercise, for at least an hour in the day. There are few cases which will not admit of some member of the family taking her place for that time. (See BED-ROOM, SICK-ROOM, COOKERY FOR THE SICK, ETC.)

NURSING SORE MOUTH, OR APHTHA LACTEA, *nurs'-ing*, a troublesome disease of the mouth, occurring in women while nursing children. It consists of numerous, irregular, white patches, scattered over the lining membrane of the tongue and the cavity of the mouth, which, when detached, leave behind them a reddish, raw-looking surface. It is sometimes dependent on mere derangement of the stomach, but more frequently indicates great debility. Sometimes it makes its appearance some weeks before parturition.

The treatment consists of local applications of borax, or chlorate of potash and glycerine (1 dram of the chlorate of potash and $\frac{1}{2}$ an ounce of glycerine to a pint of water), as a gargle, three or four times a day, and the internal administration of tonics, such as citrate of iron and quinine (5 grains, three times a day), gentian with chloride of iron, as prepared by Wyeth of Philadelphia, with nourishing diet, and good sherry wine. Carbolic acid (1 dram to a pint of water) occasionally answers better than the chlorate of potash. It is frequently necessary to wean the child before permanent relief can be obtained.

This affection is sometimes called *canker*, or *cancrum oris*; but this is scarcely correct, as these terms more properly belong to a severe form of aphthous disease occurring in children from two to five years of age, in which the mouth becomes gangrenous, emitting a horribly fetid odor, and proving fatal, frequently, in a few days. The latter is a disease demanding the most prompt interference of a skilful physician. (See THRUSH, CHLORATE OF POTASH, GARGLES.)

NURSING THE SICK. (See NURSE, SICK-ROOM; BED, BED-ROOM; AGE, OLD; CHILDBED, CHILD, COOKERY FOR THE SICK, and the various articles on the treatment of diseases.)

NUTMEG. (See MYRISTICA.)

NUTRITION, *nu-trish'-un* [Low Lat. *nutritio*, from Lat. *nutrio*, I nourish], is that complicated process by which a perpetual course of reproduction is going on in every part of the system. The living body is constantly losing part of its constituents; the component particles of the various tissues—bone, muscle, nerve, etc. They are disintegrated and removed by the vital acts of the organism, and require to be constantly replaced by new matter in order to be capable of continuing the functions necessary to life. Of the mode in which the substitution of new tissue takes place our knowledge is as yet very imperfect. Each tissue seems to possess an elective affinity for certain constituents of the blood, which it appropriates to its own use in the process of conversion into organized material. (See PHYSIOLOGY, DIGESTION, BLOOD, FOOD.)

NUTS, *nuts* [Ang.-Sax., *knut*]. This kind of fruit in all its varieties must be pronounced decidedly unwholesome. Some persons, but very few, may eat nuts with impunity; when new they are generally solid and full of oil, so as to defy any but the strongest digestion; nevertheless, they are much relished and eaten, especially by children, to whom they should be given not at all, or very sparingly. Chestnuts, when roasted or boiled, are less objectionable. (See CHESTNUT, FILBERTS, COCOA-NUT, ETC.)

NUX VOMICA. (See STRYCHNOS NUX VOMICA.)

NYCTALOPIA, *nik-ta-lo'-pe-a* [from Gr. *nux*, night; *ops*, vision];

is the faculty of seeing best at night. A person suffering from this defect of vision sees little or nothing during the day, but in evening and night has his vision tolerably unobscured. It is owing to a peculiar irritability of the retina, which may arise from a sudden or lengthened exposure of the eye to too strong a light, or to a deficiency of the black pigment. Sedative applications, as dilute tincture of belladonna, with the internal use of hyoscyamus or conium and quinine, will be of service when it proceeds from removable causes.

NYMPHÆA ODORATA, *nim-fe'-a o-do-ra'-ta*, white pond lily, or water lily, a plant belonging to the Nat. order *Liliaceæ*. It is found in ponds and marshes throughout the United States and Canada. The root is the part used in medicine. The yellow pond lily is said to possess similar properties. They are astringent, demulcent, anodyne and alterative, and are useful in dysentery, diarrhœa, the whites, and scrofula; and combined with wild cherry, in bronchial affections. Dose: of the fluid extract, $\frac{1}{4}$ to 1 teaspoonful; of the infusion, $\frac{1}{2}$ to 2 fluid ounces; of the syrup, 2 to 8 teaspoonfuls. *Lilium Candidum* or meadow lily, the common white lily, is used for the same purposes. Boiled in milk it is an excellent poultice for ulcers and tumors.

NYMPHOMANIA, *nim-fo-na'-ne-a*, inordinate lust.

O.

O, in medical prescriptions is used to denote a pint, being a contraction of *octavus*, the eighth, a pint being the eighth part of a gallon.

OAK. (See QUERCUS.)

OAK APPLE, OR GALL-NUT. (See GALLS.)

OAK, POISON. (See RHUS TOXICODENDRON.)

OATMEAL, *ote'-meal*. Oats as an article of diet are generally ranked next after wheat as regards nutritive power, the latter holding the first place in consequence of its containing a larger amount of gluten; in some respects, however, the oat is the superior grain. Oatmeal is largely employed in Scotland for the well-known "porridge," which constitutes the breakfast of a great proportion of the population, and almost universally of the children of all classes, and perhaps, a more wholesome one could not be found. In a few individuals, the use of oatmeal causes heart-burn, and occasionally nausea, and of course, must then be abandoned. One of the most beneficial properties of the oat is its aperient power; in many children, the use of oatmeal porridge for breakfast will entirely correct a tendency to constipation. The proper method of

making oatmeal porridge is, to have the requisite quantity of water boiling upon the fire, and to sprinkle the meal into it from the hand, stirring constantly, not only at the time, but during the twenty minutes that the mixture should be boiled. Sufficient salt for seasoning is to be added during the process. When the mixture is boiled sufficiently, it must be poured into a saucer or soup plate, till it is sufficiently cool. It is generally eaten with milk, but butter-milk, or treacle are also used. A pint of water, and a tea-saucerful of oatmeal, will make a good soup plateful of porridge. When oatmeal, coarsely prepared, is too largely used, especially in a dry state, it may cause concretions in the bowels (see CONCRETION), but this effect never follows its proper moderate employment. (See AVENA.)

OATMEAL GRUEL. (See COOKERY FOR THE SICK.)

OATMEAL POULTICE. (See POULTICE.)

OATS. (See AVENA, CEREALS.)

OBESITY. (See CORPULENCE, FAT, FOCUS VESICULOSUS.)

OBSTETRICS, OR MIDWIFERY, *ob-stet'-riks* [from Lat. *obstetrix*, a midwife], is that branch of medicine which relates to the management of parturition and the treatment of women after delivery. (See CHILD-BED, PARTURITION.)

OBSTRUCTION OF THE BOWELS. (See ENTERITIS, RECTUM.)

OCCIPUT, *ok'-se-put*, the back part of the head. (See ANATOMY, CAPUT.)

OCCUPATION, *ok-ku-pa'-shun* [Lat. *occupatio*]. The business or calling which a person pursues, either for pleasure or a livelihood, is called his occupation. It is a well-known fact that occupation has a peculiar effect, not only in modifying health and inducing disease, but also in qualifying the actions of medicines administered for purposes of relief. Certain occupations predispose to certain diseases. Painters and plumbers are subject to severe attacks of colic and to a peculiar form of paralysis; the shoemaker and the blacksmith, from so frequently bending over, are troubled with affection of the heart, lungs, and the stomach; and the tailor, from the cramped position of his legs on the table, frequently suffers from paralysis of the lower extremities. The housemaid is subject to white swelling; the chimney-sweep to cancer of the scrotum; the lucifer-match maker to caries of the jaw, the effect of the phosphorus; and cabmen, owing to their constant exposure to wet and cold, are frequent sufferers from rheumatism, inflammation of the eyes and pulmonary complaints.

Those whose occupations lead them into the country, where they get plenty of fresh air, abundant exercise, and hearty food, as a rule, are healthy, and when disease does come, it is generally of an inflammatory

type; while those who labor in the crowded town or city, breathing the dusty atmosphere, and drinking often impure water, are more frequently the subjects of scrofula, consumption, typhoid fever, diphtheria, and the diseases which are characterized by want of energy and tone.

Brain laborers are predisposed to apoplexy, softening of the brain, nervous debility, and constipated bowels, though moderate mental exercise is conducive to health.

Riches, if properly used, and not applied to purposes of dissipation and luxurious living, inasmuch as they exempt their possessors to a great extent from both severe physical labor and mental toil, predispose to health.

Business men in this country, as a rule, labor too unremittingly to be compatible with health, and continue the labor to an age when they should be enjoying rather the fruits of their previous toil. There is, of course, no stated age when it is proper to *retire from business*, the process should be made a gradual one. The rate of mortality among those who, from a state of restless activity of both body and mind, retire to a condition of almost complete inactivity, is very great.

Notwithstanding influence of occupation, most of the diseases to which mankind are liable might be avoided, or at least mitigated by care and a due regard to the laws of health; utter carelessness is the rule with too many, while the cause of death or loss of health, is laid at the door of their occupation instead of their own negligence. (See HEALTH, LONGEVITY, CLIMATE, CONSUMPTION, DIET, EXERCISE, MENTAL EXERCISE, FOOD, AIR, ARTIZANS AND THEIR DISEASES; COLLIERS, DISEASES OF; AGE, OLD; CLIMACTERIC DISEASE.)

OCULIST, *ok'-u-list* [Lat. *oculus*, the eye], is one who treats diseases of the eye. (See EYE, DISEASES OF THE.)

ODONTALGIA, *od-on-tal'-je-a* [Gr. *odous*, a tooth, and *algos*, pain], is the toothache. (See TEETH.)

CEDEMA, *e-de'-ma* [Gr. *oideo*, I swell], is a swelling occasioned by the infiltration of serum into the areolar tissue of any portion of the body. It is generally a symptom of some internal disease, the effusion of serum being caused by some obstruction to the return of venous blood to the heart. It hence generally arises from diseases of the heart and blood-vessels, liver, lungs, etc. In all cases, it is simply a symptom produced by different causes, and is to be treated according to the cause by which it is produced. (See DROPSY.)

ŒSOPHAGUS, *e-sof'-a-gus* [Gr. *phero* (*oiso*), I carry, and *phago*, I eat], is the gullet, or the membranous tube leading from the pharynx to the stomach, and forming the passage through which the food descends into the latter organ. It commences at the cricoid cartilage,

opposite the fifth cervical vertebra, and, descending along the front of the spine, passes through the diaphragm opposite the ninth dorsal vertebra, and there ends by opening into the cardiac orifice of the stomach. Its length is about nine inches, and its direction nearly straight, having only two or three slight curvatures. Its walls are composed of three coats, an external or muscular, a middle or areolar, and an internal or mucous coat. In the neck, the œsophagus lies immediately behind the trachea. (See ALIMENTARY CANAL, ANATOMY, MOUTH, FOREIGN BODIES IN THE GULLET, DEGLUTITION, ETC.)

OFFENSIVE SWEATING OF THE FEET AND ARM-PITS.
(See ALUM, CARBOLIC ACID, CLAY.)

OFFICINAL, *of-fis'-in-al* [Lat. *officina*, a shop], is a term applied to such medicines as are mentioned in the pharmacopœia, and directed to be kept by druggists.

OIL, CASTOR. (See RICINUS COMMUNIS.)

OIL OF VITRIOL. (See SULPHURIC ACID.)

OILS, *oilz* [Lat. *oleum*, from *olea*, the olive], are the products of either the vegetable or animal kingdom; they are divided into fixed oils—which also include the fats—and volatile oils. Oils are also divided into drying and non-drying, according to their power of solidification by absorption of oxygen from the air.

Fixed oils vary from the most limpid fluid to the hardest suet, according to the amount of solid or fluid fatty matter in their composition, all fixed oils, and animal fats, being separable into two, and often three different principles; one named oleine remains fluid at the lowest temperature, the next, margarine, has a higher melting point, and the third, stearine, the highest of all. The separation—under the influence of cold—into oleine and margarine may often be witnessed in olive-oil in winter. Fixed oils are further distinguished by their leaving a greasy stain on paper, which is not dispelled by heat, and by their power of forming soaps with the caustic alkalies.

The principal fixed oils used in medicine are: almond-oil, castor-oil, croton-oil, linseed-oil, olive-oil, cod-liver oil. They all possess, more or less, aperient properties. Almond-oil is chiefly used as an external application. The reader is referred to the separate articles for further information.

Volatile oils are of great variety, the odoriferous properties of the vegetable kingdom depending on their presence. These oils are generally limpid, should be colorless, but are for the most part slightly yellow; their taste is usually pungent. Like the fixed oils, the volatile oils cause a greasy stain upon paper which, however, entirely evaporates under the influence of heat, thus affording an easy test of adulteration with a fixed oil, which is sometimes practised.

Some volatile oils, such as turpentine, oil of lemons, juniper, etc., are composed simply of carbon and hydrogen. Others, such as lavender, peppermint, etc., also contain oxygen in addition—camphor belongs to this division—and a third section, those of garlic, mustard, etc., have sulphur added.

Volatile oils are used chiefly for their pleasant flavor, and for their stimulant carminative properties. They form a long list: amber, aniseed, bergamot, cajeput, camphor, cassia and cinnamon, camomile, cloves, copaiba, cubebs, dill, fennel, juniper, lavender, lemon, marjoram, mint, orange, peppermint, penny-royal, pimento, rosemary, rue, savine, sassafras, turpentine, etc. (See each individual article.)

OINTMENTS, *oint'-ments* [Lat. *unguentum*, from *unguo*, I anoint], are greasy or unctuous preparations, about the consistence of firm butter; they are much less used as dressings in modern practice than they formerly were, and their number might be reduced with much advantage; they have been supplanted by the more elegant, cleanly, and in every way superior, water-dressing. Occasionally, a greasy application is requisite, and then nothing answers better than perfectly fresh lard, or when fresh, the simple ointment, containing spermaceti or wax to give additional firmness. The form of ointment for purposes of counter-irritation, inunction, etc., is sometimes convenient, but even this, as in the case of tartar emetic, might be often avoided.

The ointments most likely to be useful for domestic practice are, tartar emetic ointment, gall ointment, iodide of potash ointment, mercurial and red precipitate ointments, simple or spermaceti ointment, sulphur ointment, and zinc ointment.

The composition of these is given under the head of the active ingredient they contain. Simple spermaceti ointment is made by melting together spermaceti 4 ounces, white wax 14 drams, olive-oil 20 ounces, stirring continually till the mass is perfectly cold.

One of the great objections against ointments is, that so many of them, if kept, become rancid, and thus form a most irritating application. (See DRESSING, CERATE.)

OKRA, *o'-kra* [*Abelmoschus Esculentus*], an annual plant belonging to the Nat. order *Malvaceæ*, and sometimes known as *Gombo*. It is a native of the Southern States and the West Indies, where it is used for soups and pickles. It abounds in mucilage, and for this reason may be employed wherever a demulcent is needed. An excellent softening poultice is made from the leaves.

OLD AGE. (See AGE, OLD; BRAIN IN OLD AGE, CLIMACTERIC DISEASE, OCCUPATION, HEALTH, LONGEVITY, BED-ROOM, SICK-ROOM, COOKERY FOR THE SICK, ETC.)

OLD AGE, VIGOROUS. (See LONGEVITY.)

OLEUM MORRHUÆ. (See COD-LIVER OIL.)

OLFACTORY NERVES, *ol-fak'-to-re* [Lat. *olfacio*, *olfactus*, to smell], are the nerves of the organ of smell. (See NOSE.)

OLIVE OIL, *ol'-iv*, commonly called salad-oil or sweet-oil, the product of the *Olea Europæa*, or olive-tree, though used in the form of preserved olives, are better known as the source of the well-known olive, or salad-oil, which is procured by crushing from the perfectly ripe fruit. Good olive-oil is of a pale yellow color, and should be almost free from either smell or taste. It is often adulterated with the inferior fixed oils. As an article of diet, olive-oil agrees well with many, and some persons find it useful as an aperient, but it is very weak in action. In pregnancy, however, with irritable and yet confined bowels, it occasionally answers better than the usual castor-oil. Olive-oil is most used in medicine as an external application, both as an addition to ointments and as a liniment. A teaspoonful injected into the bowels once a day, for several successive days, with a small glass syringe, is an effectual remedy for pin-worms, so troublesome to children. (See LINIMENT, OINTMENTS.)

OMENTUM, *o-men'-tum* [Lat. *omen*, an omen], is one of the numerous folds or duplicatures of the peritoneum or lining membrane of the abdomen. The omentum is attached to the stomach, and lies on the anterior surface of the intestines. It is distinguished into the great omentum and little omentum, to which some anatomists add the colic omentum, and the gastro-splenic omentum. The omentum, which is always double, contains between its lamellæ adipose tissue or fat.

ONANISM, *o'-nan-izm* [from Onan; see Genesis xxxviii, 9.] The crime of Onan—self-pollution or masturbation, requires little notice here, further than to put parents upon their guard respecting their children, in connection with this ruinous vice acquired at school, and indulged in, in ignorance either of its sin or evil consequences. Some of the most lamentable instances of youthful decrepitude, nervous affections, amaurotic blindness, and mental debility and fatuity in early life, which come before medical men, are traceable to this wretched practice. Whenever young people, about the age of puberty, exhibit unaccountable symptoms of debility, particularly about the lower limbs, with listlessness and love of solitude, look dark under the eyes, etc., the possibility of vicious practices being at the root of the symptoms should not be entirely lost sight of.

The advertising quack reaps a rich harvest from those suffering from infirmities incurred by this vice, promising speedy and secret cures for weaknesses which are frequently irremediable, and which can under no circumstances be relieved except by *resolutely* and *persistently* removing

the criminal indulgences that caused them, and by a long and persistent course of tonic treatment, which depends largely upon constitutional and other peculiarities, necessitating in all cases the advice of a physician. Masturbation almost invariably ends in the derangement of the nervous system to a greater or less extent. Constant employment in some useful occupation, and early marriage, are the most effectual correctors, and the greatest aids to a permanent restoration to vigor. A vegetable diet and cold bathing sometimes help in effecting a cure. (See NOCTURNAL DISCHARGES, IMPOTENCE, STERILITY, SEMEN, BAROSMA, DAMIANA, SALVIA OFFICINALIS, TONICS, STRYCHNOS NUX VOMICA, NERVOUS DISEASES.)

ONION AND GARLIC, *un'-yun* [Lat. *unio*]. The former of these well-known vegetables may be considered either as a condiment or as an article of real nourishment. In its raw state especially, the onion, by virtue of the volatile oil it contains, is a powerful stimulant, but one only to be used with advantage and impunity by the owners of strong stomachs, who intend for the time being to eschew civilized society; under this proviso, the onion may really, at times, prove, and has done, of much value as a stimulant. By boiling, the onion is deprived of much of its pungent volatile oil, and becomes an agreeable, mild and nutritious vegetable; it is less wholesome—either fried or roasted, a portion of the volatile oil being retained, and empyreumatized, and thus rendered very irritating to the stomach. The onion possesses diuretic properties. A roasted onion, cut in half, and the centre scooped out, is a frequent domestic remedy applied to boils, with a view of hastening their breaking.

Garlic is a more powerful stimulant than onion. When applied to the skin, either fresh or in a pulp, it acts like a mustard poultice. Garlic is diuretic, and possesses other properties; but its abominable smell is quite sufficient to exclude it from use, when so many more efficient and agreeable substitutes are obtainable. (See **ALLIUM**.)

ONYCHIA, *o-nik'-e-a* [Lat. *onyx, onychis*], is a species of ulcer very difficult to heal, situated at the side of and underneath the nail. It is usually dependent on general constitutional debility, which requires to be attended to. (See **DEBILITY, TONICS, ETC.**)

OPACITY, *o-pas'-e-te* [Lat. *opacitas*, from *opacus*, opaque], a term applied to any thickening of the cornea, or any change which affects its transparency, and which is popularly called film. There are various kinds or degrees of opacities, such as (1) *albugo* or *leucoma*, the denser form; (2) *haziness* or *nebula*, the slighter form; and (3) *macula*, a mere patch, or speck. (See **EYE, VISION**.)

OPERATION, *op-er-a'-shun* [Lat. *opus*, a work], any exercise of the

surgical art, performed by the hand, or by the assistance of instruments. It is termed *simple* when one kind of operation is required, and *complicated* when it consists of more than one kind, as in cataract, when both incision and extraction is necessary. There are several simple surgical operations which can be easily performed by a careful nurse or mother, such as the extraction of a thorn or splinter, lancing the gums, cutting of an ingrowing toe nail, opening a small abscess or fistula, etc.; and sometimes the tying of a severed artery, cupping, etc. (See ACCIDENTS, GUMS, DENTITION; NAILS, INGROWING OF THE; ABSCESS, FISTULA, ARTERIAL HEMORRHAGE, CUPPING, WOUNDS, BURNS AND SCALDS, BITES AND STINGS, DISLOCATIONS, FRACTURES, ETC.)

OPHELIA CHIRATA, *o-fe'-le-a shi-ra'-ta*, or chiretta, an Asiatic plant belonging to the Nat. order *Gentianaceæ*. The herb and roots are bitter tonic and stomachic. It promotes digestion, improves the appetite, and gives tone to the system, without stimulating or causing constipation. Dose: of the fluid extract, 15 to 30 drops; of the tincture, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

OPHTHALMIA, OR INFLAMMATION OF THE EYES, *of'-thal'-me-a* [Gr. *ophthalmos*, the eye], is an inflammation of the eye. General ophthalmia is of very rare occurrence, the disease being in the great majority of cases confined to some one of the parts, and having a distinct name; as conjunctivitis, iritis, or corneitis, denoting inflammations of the conjunctiva, iris, or cornea, respectively.

INFLAMMATION OF THE CONJUNCTIVA.—The most frequent form of ophthalmia is inflammation of the *conjunctiva*, or membrane lining the outer surface of the eye.

Causes.—It may be caused by the presence of any irritating body, and is frequently produced by cold, when it is known as catarrhal ophthalmia.

Symptoms.—In it the eyes are bloodshot, the redness being produced by injection of the network of vessels which covers the white of the eye; the lids are swollen, with a great deal of smarting and itching and a feeling as if there were sand or other foreign body in the eye. There is at first a great flow of tears, which is soon followed by the secretion of a thin muco-purulent discharge, which accumulates at the corners of the eyes.

Treatment.—This is ordinarily a mild and manageable complaint, and may, in most cases, be got rid of by rest, a brisk purgative, and the occasional application of tepid water, or milk and water to the eye. If the inflammation does not subside in a day or two, the eye may be bathed several times a day with a dilute solution of alum, or of sulphate

of zinc, 3 grains of the former or 1 grain of the latter—whichever may be most convenient—to 1 ounce of water, and in severe cases by blood-letting, by means of cupping-glasses or leeches applied to the temple.

PURULENT OPHTHALMIA.—A much more severe form of conjunctivitis is *purulent ophthalmia*, or as it is frequently called, *Egyptian ophthalmia*, from its having been brought by the army returning from the expedition to Egypt during the wars of the first Napoleon.

Symptoms.—In this all the symptoms of the preceding are greatly aggravated. The conjunctiva is red and swollen, rising up like a wall round the cornea; the eyelids are tense, livid, and often enormously swollen; a copious secretion of muco-purulent matter is poured out, and there is a burning pain in the eye, with inability to bear the light.

Treatment.—It requires prompt and decided treatment, as there is always great risk of permanent injury to the eye from its tendency to produce thickening and granulation of the conjunctiva of the lids, or ulceration and sloughing. In the severer forms of the disease recourse must be had to bleeding, either general or by means of cupping-glasses or leeches, and purgatives. The eye should be frequently cleansed with warm water, or a weak solution of alum or bichloride of mercury (2 grains to 1 ounce of water) and 1 or 2 drops of a weak solution of lunar caustic (from 2 to 4 grains to 1 ounce of water) should be let fall into the eyes once or twice a day.

OPHTHALMIA OF NEW-BORN INFANTS.—Infants of a few days old are often subject to a very severe form of inflammation of the conjunctiva, to which the name of *ophthalmia neonatorum* (ophthalmia of new-born infants) has been given.

Treatment.—In mild cases, bathing or cleansing the eye several times a day with a weak warm solution of alum may be all that is necessary; in severe cases a leech should be applied to the temples, purgatives administered, and a weak solution of nitrate of silver (1 grain to 1 ounce of water) applied to the eye daily.

STRUMOUS OR SCROFULOUS OPHTHALMIA occurs in children of scrofulous habits, and is chiefly remarkable for the extreme intolerance of light by which it is accompanied. The child keeps its head down, shelters its eye with the hand, and avoids the light.

Symptoms.—The eye itself presents little appearance of inflammation, merely a faint blush of redness; but in many cases little pustular elevations form upon the edges of the cornea.

Treatment.—In such cases the treatment should be chiefly adapted to the constitutional disorder from which it springs. Pure air and exercise, mild aperients and tonics, especially bark and iodine, should be

administered, and the general health carefully attended to. The following formula will be found useful in these cases:

Take of Sulphate of iron	Two grains.
Sulphate of quinine.....	Three grains.
Dilute sulphuric acid.....	Ten drops.
Pure water.....	One ounce.— <i>Mix.</i>

Give 1 tablespoonful three times a day. This is intended for a child two or three years of age, and must be varied in strength according to the patient's age. In addition a teaspoonful of cod-liver-oil may be taken twice a day if the stomach will bear it. Slightly astringent lotions may also be applied to the eyes, and in the earlier stages a few leeches or blisters behind the ear, are of great service.

In sclerotitis, or inflammation of the sclerotica, when pure (but it is apt to be conjoined with inflammation of the conjunctiva, cornea, or iris), the redness of the eye is of a pink tint, forming when most marked, a zone round the cornea, and gradually shading off towards the circumference of the eye. There is always considerable pain, of a dull, heavy kind, which often exists all round the orbit, or over the forehead, and is accompanied by an intolerance of the light and profuse secretion of hot tears. Warm fomentations are of service locally; besides which a dose of calomel and opium, 2 grains of the former to 1 of the latter, at bedtime, followed by a purgative on the following morning, will generally remove the affection. In severe cases, blood-lettings and counter-irritation by means of blisters, are likewise necessary. The other forms of ophthalmia are much less common than the above, and their mode of treatment does not differ materially from that just given. (See EYE, DISEASES OF THE.)

OPHTHALMOSCOPE, *of-thal'-mo-scope*, is an instrument recently invented for examining the deep-seated structures of the eye, and detecting disease in them. In its simple form it is a concave circular mirror of about eight inches focus, with a hole in the centre. It may be mounted on a handle four or five inches long. There is also necessary a convex ocular lens an inch and a half in diameter with a focus of two and a half to three inches, set in a common eye-glass frame. The patient is seated by a table in a dark room with a sliding argand lamp by his side close to his head, with the flame on a level with the eye, from which it is screened by a little flat plate of metal attached to the burner. The operator sits directly in front, and holding the instrument close to his eye, commences at the distance of about eighteen inches from the patient to direct the reflection on the eye. When this is got, the convex lens is held at the distance of two and a half inches from the eye, and the focussing commenced by moving them slowly backwards

and forwards till the optic disc and blood-vessels of the retina are brought into view. (See EYE; EYE, DISEASES OF THE.)

OPIATE, *o'-pe-at*, a name used to denote any preparation of opium or any medicine that produces sleep. (See OPIUM.)

OPINION, MEDICAL, *o-pin'-yun* [Lat. *opinio*]. A medical opinion on a case of disease includes, first, the “diagnosis” or conclusion arrived at respecting the nature of the disease; second, the conclusion as to the appropriate treatment; third, the “prognosis” or opinion respecting the ultimate termination of the case. Under articles DIAGNOSIS, PROGNOSIS, DEATH, etc., these points are sufficiently entered into. (See also MEDICAL ADVICE, DISEASE, PHYSICIAN, SURGEON.)

OPIUM, *o'-pe-um* [Gr. *opos*, juice], is the milky juice, dried, of the seed-vessels of the common garden poppy. It is most familiarly known in its action upon the human body, first, by its power of compelling sleep—its sedative, soporific, or narcotic property; and second, by its power of relieving pain, its anodyne property; these actions, however, are much varied, and others are developed in accordance with the influence of circumstances, either permanent or accidental, such as the dose, and mode of administration; the state of the person taking it at the time, whether physical or mental, his temperament, previous habits, etc. It is well known that among the Orientals, opium is employed rather as a stimulant, as we use wine, than as a sedative, and its use for this purpose has very widely extended of late years in this country. When taken with the above view, the dose requires to be small—that is comparatively so according to the habits of the individual—and if sleep approaches, it requires to be resisted; after this state if it occurs, in those who are stimulated by opium, a state of unusual physical, and especially of mental activity is excited, accompanied with exalted brilliancy of ideas; after some hours this subsides, leaving drowsiness, inactivity, and low spirits.

If, however, the dose of opium has been a large one, or if the individual gives way to the inclination to sleep which follows even a moderate dose, heavy slumber is the result, varying in duration according to the dose of the drug, and other contingent circumstances. Such is the more ordinary medical effect of opium, but whether the effect produced be one of excited, or of sedative action, pain is either modified or wholly subdued for the time being. When the effects of an ordinary dose of opium are passing off, most persons experience some amount of uncomfortable sensation; dryness of the mouth, headache, low spirits, and nausea; this latter symptom especially, is sometimes so distressing as almost to debar the use of opium in certain individuals.

Sometimes opium produces neither sleep nor the pleasing excitement so valued by its votaries; but gives rise to feverish restlessness, headache,

thirst, etc. This may arise from constitutional peculiarity, from a state of previous feverish excitement, from the drug having been swallowed too soon after a meal, or from other causes.

In whatever way it is conveyed into the system, whether by the stomach, by the skin, as by external application, etc., opium seems to exert its peculiar effects upon the brain and nervous system; it further modifies the secretions, particularly those of the mucous membranes; it checks the flow of bile, and powerfully constipates the bowels; but it determines to the skin, and causes sweating. The constipating action of opium is sometimes one of its chief inconveniences, but in those who consume it regularly, this effect generally soon passes off.

The action of opium upon the system is in the first place greatly modified by custom; persons who habitually take it for purposes of intoxication, find it necessary gradually to increase their dose if they wish to experience the—to them—agreeable influence.

Again, the existence of certain diseases, particularly of a spasmodic or painful character, very greatly modifies the power of opium over the system; this is peculiarly exemplified in such diseases as lock-jaw, etc. Persons, even, who are ordinarily very susceptible to the action of opium, when suffering severe pain, can often take it in considerable quantity, without experiencing its usual effects, or, indeed, any effect beyond relief to pain. Age is another circumstance, which, affecting the power of action of all medicinal agents, seems peculiarly to do so in the case of opium, its influence augmenting in a rapidly increasing proportion as the earliest epoch of life is approached; indeed, during the first two or three years of life, it is impossible to exercise too great caution in the administration of opium; many accidents are known to ensue from its careless, or ignorant, or criminal use, and doubtless many more there are which never come to light. A single drop of laudanum has been known to prove fatal to a young infant. Even in infancy, habit, nevertheless, enables comparatively large doses of opium to be given, but the most lamentable results accrue to the constitution, and, ultimately, death itself may be the consequence. No one should be tempted to give opium in any form to a child, unless under medical sanction, or under the pressure of some of such circumstances as are pointed out in various parts of this work (see CHILDREN), and when it must be given, it should be in the form of laudanum, in the most cautiously graduated dose. To an infant under two months old, $\frac{1}{4}$ to $\frac{1}{8}$ of a drop only should be given at once, and repeated at intervals of an hour, if required; and even in this way, no unprofessional person should venture to exceed the amount of one single drop of laudanum to an infant under six weeks old.

Poisoning by opium, either by accident or design, is a very common

occurrence. The symptoms generally set in from half an hour to an hour after the drug has been swallowed; but this circumstance depends partly upon the form in which the poison is taken, being delayed longer when solid opium has been employed, instead of, as more usually happens, its fluid preparation, laudanum. The symptoms are, giddiness and drowsiness, from which the person may be roused by noises, shaking, etc.; but this quickly passes into apoplectic stupor, with slow, "stertorous" breathing; and, ultimately, if the case proves fatal, into death, with or without convulsions, these being most common in children. In addition to the above symptoms, the face is pale and ghastly-looking, the surface cold, but may be covered with perspiration; the urine is unpassed; the pupils of the eye are generally contracted; the odor of opium may possibly be detected in the breath.

The treatment of a case of poisoning by opium must, in the first place, be to procure the evacuation of the poison from the stomach. For this purpose, a medical man may use the stomach-pump; but others must attempt it by emetics. If sulphate of zinc (white vitriol) be procurable, $\frac{1}{2}$ a dram should at once be given, dissolved in water; or 5 grains of sulphate of copper (blue vitriol), in the same way; or mustard or salt may be tried if neither of the above are at hand; or ipecacuanha combined with a stimulant—a couple of teaspoonfuls of sal-volatile or of brandy; or the throat may be irritated with a feather. In some cases, vomiting and even diarrhœa, occur spontaneously, and certainly diminish the danger. When the stomach has been cleaned, *but not before*, vegetable acids—lemon-juice, vinegar, cream of tartar—may be given freely; or strong coffee, without either milk or sugar. At the same time, every means must be used to keep the patient from lapsing into lethargy; cold, or alternate cold and hot, water, may be dashed over the body; mustard plasters used between the shoulders, and continual movement kept up. This is usually, and very properly, done by keeping the patient in continual motion for many hours between two assistants. Lastly, galvanism or electricity may be used, and artificial respiration kept up.

Tannin, the active principle of oak bark, has been recommended in opium poisoning. In the absence of other remedies, a strong decoction of the bark might be used. It must be remembered that in poisoning by opium, partial consciousness may be restored, and yet the patient, if unattended to, may relapse and die. It has been suggested that many of the symptoms of poisoning by opium are the result of the dryness of the lining membrane of the air-tubes—which is one of the invariable consequences—preventing the due oxygenation or purification of the blood; the fact should not be lost sight of, especially as it may be remedied by making the patient inhale steam freely.

The quantity of opium required to destroy life may probably be stated at from 4 to 5 grains of solid opium as a dangerous dose to an adult, and from $1\frac{1}{2}$ to 2 drams of laudanum and upwards. The average time in which death ensues, in consequence of poisoning by opium, is twelve hours; but it may occur considerably earlier.

Opium as a medicine is useful in a great variety of diseases, but as its employment is mentioned under the separate articles, it is unnecessary to repeat the information here. The most useful preparations of opium are—

Opium powder.—To be kept in a well-stopped bottle. Average dose for an adult, 1 grain.

Laudanum, or tincture of opium, which contains 1 grain of solid opium in 19 minims. Average dose for an adult, 15 to 20 minims, or about 25 to 30 drops. Of all the preparations of opium, this is the most generally useful and valuable, and the safest. Its dose may be regulated to the minutest proportion, and when properly made, it keeps well.

Purgative, or tincture of opium with camphor, which contains 1 grain of solid opium to the $\frac{1}{2}$ ounce. Average dose for an adult, 1 to 3 teaspoonfuls; for doses for children see PAREGORIC.

Dover's powders, or compound opium powders with ipecacuanha, which contains 1 grain of solid opium in 10. (See DOVER'S POWDER.)

Compound opium powder with chalk, which contains 1 grain of opium in 40. Average dose, 20 to 40 grains.

Morphia, or morphine, is the special sedative or narcotic principle of opium. (See ALKALOIDS.) Opium is a very compound body, and includes other principles, on some of which its stimulant and other powers more particularly depend; morphia, therefore, being separated from these, is more purely sedative, and is not found so frequently to occasion the disagreeable after-effects which often follow the use of opium; in other respects, its action and applications are the same.

Morphia, on account of its insolubility, is generally prescribed in the form of the more soluble acetate or muriate or sulphate of morphia. The latter is the best and more certain preparation: dose, from $\frac{1}{4}$ to $\frac{1}{2}$ a grain. The graduated morphia lozenge is a most effectual and comparatively agreeable remedy in irritable cough; 10 or 15 of the lozenges may be taken in the course of the same number of hours.

As *external applications* the soap opium liniment and the opium plaster, are both useful.

Battley's sedative solution, a secret remedy, will be found under its special article.

There are many other preparations of opium used, but the above

would be ample for the best stored emigrant chest; and therefore for any home use. Persons generally will find it more advantageous to purchase the preparations ready made, but in some cases, it may be requisite to make laudanum themselves.

To make laudanum.—Take of opium, sliced, 3 ounces; water, 13 fluid ounces by measure. Macerate the opium in the water, in a wide-mouthed bottle for a couple of days, shaking up occasionally, and then add 27 ounces of rectified spirit of wine; macerate for ten days or a fortnight, and filter. Of course a much smaller quantity may be made at once, observing the same proportions.

Laudanum and paregoric are best administered in water; Dover's powder, or the compound chalk powder, in some thick substance, such as gruel. When solid opium is given, it is best in the form of pill, without admixture. Laudanum is sometimes used as an external application, being put into poultices, etc.; it is also used to rub on the gums in toothache. It must not be forgot, that in any of these ways, if employed incautiously, or in excessive quantity, it may affect the system and even prove dangerous. For the use of laudanum in injections, the reader is referred to the article CLYSTER. (See CODEIA, ANODYNE, NARCOTICS, PAPAVER SOMNIFERUM, BATTLEY'S SOLUTION OF OPIUM, CHLORODYNE, BLACK-DROP.)

OPODELDOC, *op-o-del'-dok*, is an old name, seldom used now by medical men, applied to external stimulating embrocations. The camphorated soap liniment is the form most usually indicated by the term, popularly. It is made as follows:

Take of Common white soap.....	Two ounces.
Camphor.....	One ounce.
Oil of rosemary.....	Three drams.
Oil of origanum.....	Two drams.
Strong solution of ammonia.....	One ounce.
Alcohol.....	One and a half pint.

Dissolve the soap in the alcohol, then add the ammonia, the oils, and the camphor; agitate until dissolved, and pour into wide-mouthed vials. It is of a semi-solid consistency.

OPTICAL DELUSIONS, *op'-te-kal*, the result of diseased or of disordered action—are not uncommon. Under the term may be included the more obvious disorders of vision, such as those in which one half of an object, or one half of a word only, are perceived. From this state, up to that in which figures of persons, either known or unknown, are seen, either constantly or periodically, every form of optical delusion is met with. Such cases are generally connected with disorder in the head, either in a form of disease of the brain itself or are occasioned by sympathy with disordered function in other parts of the body, more

particularly the stomach, and may frequently be removed by a cathartic. (See VISION, EYE; EYE. DISEASES OF THE; CATHARTICS, ETC.)

OPTIC NERVE. (See EYE.)

ORANGE, *or'-anj* [Lat. *aurantia*]. This well-known and wholesome fruit is chiefly produced in Florida, California, and the countries bordering the Mediterranean. The two varieties—the bitter or Seville orange, and the sweet orange, are too well known to require description. The perfume of the orange-flower is highly valued, and the distilled water is used as an antispasmodic and anodyne; it is recommended as extremely useful in hysteria, in doses of 1 or 2 fluid ounces.

The chief direct medical use of the orange is derived from the rind, which yields an agreeable, aromatic, stimulant bitter; the rind of the bitter orange is usually ordered, but that of the sweet may also be used, though it is less powerful. A confection, an infusion, a syrup, and a tincture of orange peel, are all used. A very good infusion may be made, simply, from an ounce of the dry bitter orange peel, 20 ounces of boiling water being poured over, the whole allowed to stand for twenty minutes, and then strained; the addition of $\frac{1}{4}$ ounce of lemon peel to the above quantity may be made with advantage. The dose, as a stomachic, is a wine-glassful twice a day. The finest descriptions of the sweet orange have a smooth, thin, dark, rind. The juice of the sweet orange contains principally mucilage, sugar, and citric acid, and is one of the most wholesome vegetable juices we possess, particularly in the chamber of sickness; the cellular pulp of the orange, however, in which the juice is contained, is very indigestible, and when swallowed, as it often is by children, is apt to produce disorder, passing through the bowels unchanged. It is a good plan in the case of young children, to give the orange juice squeezed into a glass. The custom of serving oranges and other fruits, as the first dish at the breakfast table is a healthful one. (See CITRUS, AURANTII CORTEX.)

ORANGE PEEL. (See AURANTII CORTEX, ORANGE.)

ORBIT, *or'-bit* [Lat. *orbita*; *orbis*, a sphere or a circle], the cavity in the skull in which the eye is placed. (See EYE, SKULL.)

OREGON, CLIMATE OF. (See CLIMATE.)

ORGAN, *or'-gan* [Lat. *organum*], a part which has a determinate office in the animal economy. We divide organs into 1st, those of *circulation*, as the heart, and arteries, veins, capillaries, etc.; 2nd, of *absorption*, as the lymphatic vessels and glands, the lacteals, etc.; 3rd, of *sensation*, as the eye, ear, nose, tongue, skin, etc.; (in this we include the muscular system); 4th, of *digestion*, as the mouth, the stomach, the intestines, etc.; 5th, of *respiration*, as the lungs, the trachea, the bronchi, etc.; 6th, the *voice*, as the larynx, the cartilages

and muscles of the throat, etc.; 7th, of *secretion*, as the liver for the bile, the kidneys for the urine, the lachrymal glands for the tears, etc.; 8th, of *generation*, as the testes, penis, etc., in the male—the pudendum, uterus, etc., in the female.

ORGANIC MOLECULES, *or-gan'-ik*, a term applied to certain floating bodies said to exist in the male semen, and which have been regarded as primordial monads of peculiar activity, existing throughout all nature, and constituting the nutritive elements of living matter. Dr. Darwin termed these *vital germs*.

ORIGANUM, *o-rig'-a-num*, a perennial herb belonging to the Nat. order *Lamiaceæ*. It is commonly called wild marjoram, and is a common garden herb all over both America and Europe. The whole herb is official. A warm infusion promotes perspiration and tends to bring on the monthly discharge when suppressed by cold. No nicety need be observed in the dose of the infusion. The oil is one of the ingredients in the well-known camphorated soap liniment. (See INFUSION.)

OROBANCHE VIRGINIANA, *o-ro-ban'-ke vir-jin-e-a'-na*, or cancer root, a parasitic plant belonging to the Nat. order *Orobancheaceæ*. It springs from the roots of the beech tree, and is known by the common name of beech drops. It was named cancer root, from its supposed efficacy in cancer. It is needless to say that it possesses no virtue whatever in that terrible disease. It is an astringent, and in hemorrhage of the bowels and womb, and also in diarrhœa, has been found useful. It is also of service as a local application in erysipelas, aphthous ulcerations and gangrenous ulcers. A poultice of equal parts of poke, white oak and beech drops, is found very useful in herpes and other similar affections of the skin. Dose of the powder, 10 to 15 grains, three or four times a day.

ORPIMENT, *or'-pe-ment* [Lat. *auripigmentum*; *aurum*, gold, and *pigmentum*, pigment]. Orpiment is the yellow sulphuret of arsenic. (See ARSENIC.)

ORRIS ROOT. (See IRIS FLORENTINA.)

ORTHOPÆDIC SURGERY, *or-tho-ped'-ik*. That branch of surgery which relates to the treatment of deformities, especially of the spine, ribs, and pelvis. Much more attention is being paid to it than formerly.

OSMAZOME, *oz'-ma-zome*, is the animal principle on which the peculiar and agreeable flavor of cooked meat depends. It is most manifestly developed in decoctions of meat, such as soups, etc. It may be taken as an axiom that the beef-tea is not properly made, unless it contains all the agreeable and aromatic principles.

OS, OR OSSIS. *os*, Latin for bone. (See BONE, ANATOMY.)

OS SACRUM. (See SACRUM, Os.)

OSSIFICATION, *os-se-fe-ka'-shun* [from Lat. *os*, bone; *facio*, I make], the formation of bone. In the growth of the skeleton of man and the higher animals, this process goes on naturally, and it occurs in the reproduction of new bones after the destruction or loss of old ones. Ossification also occurs as an unnatural or morbid process, and is observed in several tissues of the body. It occurs most frequently in the cartilages of the ribs, where the process is almost constantly going on in advancing years. The disease called ossification of the heart is not an affection of the proper substance of that organ, but of its valves, in which earthy matter is sometimes deposited; thus rendering them stiff and unyielding. This substance is composed of carbonate and phosphate of lime, as bone is; but its particles have no definite arrangement. (See BONE.)

OSTEOLOGY. (See ANATOMY.)

OSTRYA VIRGINICA, *os'-tre-a vir-jin'-e-ka*, or iron wood, a common American tree belonging to the Nat. order *Cupuliferae*. The inner wood is the part used medicinally. It is antiperiodic, tonic and alterative, and is very useful in intermittent fever or ague, neuralgia, dyspepsia and scrofula. Dose of the decoction, 1 or 2 fluid ounces, three or four times a day. (See DECOCTION.)

OTALGIA AND OTITIS. (See EAR, DISEASES OF THE.)

OUNCE. (See WEIGHTS AND MEASURES.)

OUT-DOOR ACTIVITIES. (See AIR, EXERCISE.)

OVARY AND OVARIAN DISEASE, *o'-va-re* [Lat. *ovarium*, from *ovum*, an egg], in Anatomy, is the name given to two flat oval bodies, about an inch in length, and rather more than half an inch in breadth and thickness, situated on either side of the uterus, to which they are attached by ligaments and the Fallopian tubes. The ovaries are liable to a variety of diseases, but that which is most common is the ovarian tumor, or ovarian or encysted dropsy. The tumor sometimes attains enormous size. Of the means used to remedy this disease are medicines for promoting absorption, or atrophy; tapping; and ovariectomy, an operation requiring great experience and skill. In all cases a medical man must be at once consulted.

OVERDONE MEAT. (See ROASTING.)

OVUM. (See EGGS.)

OXALIC ACID, *oks-al'-ik* [Lat. *oxalis*], is one of what are called the vegetable acids, being found ready formed—in combination with potass—in various plants, such as the common wood sorrels, or *acetosella*, the common sorrel, the garden rhubarb, etc. It is also formed in some disordered states within the animal body, and is excreted in the urine, in combination with lime.

What is known in the drug stores under the name of "essential salt of lemons," or salt of sorrel, is a compound of oxalic acid with potassa, and was formerly obtained from the wood sorrel.

Oxalic acid derives its chief importance from its frequent effect as a poison, either by accident or design. The accidents have generally arisen in consequence of oxalic acid having been sold or taken in mistake for Epsom salts, the crystals of the two closely resembling each other; the precaution of tasting a single crystal would be sufficient to detect the difference. (See ACIDS, POISONS AND THEIR ANTIDOTES.)

OX-GALL, OR OX BILE, *oks'-gawl*. The gall or bile of the ox has been much lauded as a remedy in habitual constipation. A few years ago, it was extensively tried, and undoubtedly proved, and does prove serviceable in certain cases, but, perhaps, having been over-praised, it seems to have become again almost too much neglected. In some cases of constipation in pregnancy, it answers extremely well, and is very safe. Its preparation for medicinal purposes is simple, all that is required being, to place a quantity of fresh ox-gall into a flat dish, in a sufficiently warm situation—such as an oven—and permit evaporation to go on, till the gall becomes sufficiently firm to make into pills, of which from 5 to 10 grains weight may be taken once or twice a day. Besides acting as an aperient, ox-gall has been said to assist digestion; this may be, either from its bitter-giving tone to the stomach, or from its giving its own chemical aid to the solution of certain constituents of the food.

OXIDATION, *oks-e-da-shun* [Fr. *oxydation*], is a term applied to the union of any body with oxygen, such body being said to be *oxidized*, and the resulting compound being termed an *oxide*. All the elements, except fluorine, combine with oxygen to form oxides. In this act of combination heat is always, and light is frequently, given off.

OXIDES, *ox'-idz* [Fr. *oxyde*], are compounds of other bodies with oxygen. It very frequently happens that a body is capable of uniting with oxygen in several proportions. Hence the use of the names *protoxide*, *binoxide* or *deutoxide*, *teroxide* or *tritoxide*, *peroxide*, etc.

OXYGEN, *oks'-e-jen* [Gr. *oxus*, acid, and *gennao*, I generate]; symbol O, equivalent 8, specific gravity (air = 1) 1.1057, ditto (hydrogen = 1) 16; comb. vol. 1; 100 cubic inches weigh 34.203 grains. Oxygen is the most abundant of the elements. It forms $\frac{8}{9}$ of water, $\frac{1}{4}$ of air, and about $\frac{1}{2}$ of silica, chalk, and alumina, the three chief constituents of the earth's surface. It is also the most important element, being essential to the support of animal life, and on its presence depends the phenomena of combustion, etc.

Whether the nitrogen gas with which oxygen is mingled in the atmosphere fulfils other objects or not, it certainly does the important one of

diluting it, and of tempering its potent agency, which, were it not for this dilution, would act with such chemical energy, as must quickly prove destructive to organized life upon our globe as at present constituted.

Oxygen, in combination, forms what are called *basic oxides*. These are bodies such as potash, soda, oxide of iron, etc., which tend to unite with its next class of compounds, the *acids*. Besides these, oxygen forms compounds which do not exhibit aptness for entering into combination.

Further, oxygen, by uniting in different proportions with the same body—such as nitrogen—may give rise to a variety of very different compounds. Oxygen has never been separated in a palpable form; it is known by its effects. It is given off by growing plants, under the influence of direct sunlight. The important part which oxygen plays in the various fulfilments of animal life and existence, has rendered the foregoing notice necessary. Under such articles as ANIMAL HEAT, AIR, BLOOD, DIGESTION, MOTOR CHANGE, RESPIRATION, etc., the reader will find those fulfilments and effects sufficiently entered into. The employment of oxygen in the form of inhalation, as a remedial agent in various diseases, has often been proposed, but never established in practice.

For laboratory use, it is mostly obtained by heating chlorate of potash, finely powdered, and mixed with one-eighth its weight of oxide of copper, iron, or manganese. (See CARBON, CARBONIC ACID, ETC.)

OXYMEL, *oks'-e-mel* [Lat. *oxymeli*], an acidulous syrup, made of honey and vinegar. It is commonly used to form gargles, or as a vehicle for expectorant medicine, or to form cooling drinks in fever. The oxymel of the Pharmacopœia is formed by liquefying 40 ounces of clarified honey, by heat, and adding 5 fluid ounces each of acetic acid or vinegar, and distilled water; dose, 1 to 2 teaspoonfuls. Oxymel of squill (vinegar of squill, 1 pint, and clarified honey, 2 lb. mixed, and evaporated by water-bath till the product, when cold, has a specific gravity of 1.32), dose, $\frac{1}{2}$ to 1 teaspoonful.

The above are pleasant and useful preparations in some forms of catarrh and cough, and may be used alone or combined with other medicines.

OYSTER, *ois'-tur* [Lat. *ostrea*]. Respecting the wholesomeness of this well-known shell-fish, much difference of opinion exists among medical men; nutritious, especially when uncooked, they certainly are, but their digestibility in all probability depends greatly upon the person by whom they are eaten. Some, whose stomachs generally require much consideration, can eat oysters in moderation with impunity. Many medical men, however, condemn them for invalids. Oysters have, though rarely, like other shell-fish, caused symptoms of irritant

poisoning. The eye of the oyster being exceedingly indigestible, should always be taken out before giving to invalids. (See FISH.)

OZÆNA, *o-ze'-na* [Gr. *oze*, a smell], a disease characterized by a discharge of fœtid purulent matter from the nostrils. It is owing to inflammation or ulceration of the mucous membrane, and may follow on a common catarrh. It is most common in persons of scrofulous or delicate constitutions.

Treatment.—The treatment consists in strengthening the system by means of nourishing diet and tonics, as cinchona bark, with mineral acids, iodide of potassium, and cod-liver-oil. A dry, bracing, equable climate should also be sought; and the nostrils should be well syringed once or twice a day with warm water, to which some alum, zinc, or a solution of permanganate of potash (5 or 10 grains to a pint of water), may be added. A weak solution of chlorate of potash is also useful—used in the same way. In the absence of a syringe, the solution may be snuffed up the nostrils. (See CATARRH OR COMMON COLD; CATARRH, CHRONIC; CHLORATE OF POTASH.)

OZONE, *o'-zone* [Gr. *oze*, a stench], a peculiar modification of oxygen, supposed to be that gas in a permanently negative state, and exhibiting very energetic properties as compared with the gas in its ordinary condition. It bleaches the vegetable colors, converting indigo, for instance, into colorless isatine. It appears to act most beneficially as a disinfectant in the economy of the world; it having been proved that epidemic diseases, such as cholera, fever, etc., are always accompanied by decrease, or entire absence of this agent from the atmosphere. (See AIR, OXYGEN.)

P.

PACIFIC STATES, CLIMATE OF. (See CLIMATE.)

PAIN, *pane* [Ang.-Sax. *pin*, pain, punishment, torture.] The sense of pain, like other sensations, originates in the nerves, and very generally appears to be located in the parts where their ultimate branches terminate; the perception of pain, however, by the sentient being, must depend upon the brain, the sense of it being conveyed to that organ by the nerves. This we know, certainly, to be the case, for if the nervous communications with the brain are cut off, as by injury to the spinal cord, or if that organ itself is oppressed, as in stupor, there is no sensation, and consequently no pain. There may be the appearance of sensation and of pain being felt in consequence of reflex action, but it is appearance

only. If any portion, almost, of the healthy body is injured, pain is felt, because the universally distributed nerve branches are injured in the process, and, as might be expected, the sensation is referred to the seat of the injury; but pain being felt in a particular part, or as if in a particular part, is not necessarily indicative of injury at the place where it is felt; it may arise from irritation of the nerve cord, which supplies the part at almost any part of its course. This is most strikingly exemplified in the cases of persons who have suffered amputation of a limb, and who often experience the sensation of pain, as if in the member they had lost. Similar, in some degree, to the above, are the sympathetic pains observed in some cases of disease; such, for instance, as the pain at the point of the shoulder from affection of the liver, the pain in the knee which is so general an accompaniment of hip disease, or the pain in the legs which may result from acid in the stomach. Pain, therefore, although a most valuable guide in the investigation of disease, is by no means an unerring one, and must not be too implicitly trusted.

The faculty or power of feeling pain, the sensibility of the various parts of the animal body, when in a healthy condition, varies greatly, depending in a great measure, upon the supply of nerves they receive, thus, such parts as bones, tendons, ligaments, etc., are generally but little sensitive; when, however, they become inflamed, they are acutely so. Further, it would seem that certain affections of the central parts of the nervous system, greatly increase the sensibility to pain, as well as diminish it, more particularly affection of the spinal cord. Such is the case in hydrophobia, lock-jaw, etc., in which every portion of the surface of the body becomes painfully sensitive.

Lastly, in functional disorder, or irritability of the nervous system such as occurs in hysteria, there is often intense susceptibility to pain, as well as to other outward impressions, but this evidently depends on very different causes, and requires very different treatment from the cases above mentioned. (See HYSTERIA.) Pain is not at all times referred to the terminations of the nerve, in neuralgia either of the head or face, or affecting the great nerve of the thigh and leg—sciatica—the pain is often complained of in the site of the main cord of the nerve itself.

Pain varies greatly in kind, as all know; it is dull and aching, sharp and cutting, throbbing, tingling, smarting, burning, etc., these differences depending in some measure upon the part affected. Inflammation of the skin is generally accompanied with pain of a burning, tingling, or smarting character, that of a serous membrane, such as lines the chest, causes pain that is sharp and cutting, which is the case in pleurisy;

the pain of toothache is dull, aching, and throbbing; the pain of spasm is sharp, but distinguished from that of inflammation by not being aggravated by pressure.

It is probable—and cases of hysteria justify the supposition—that some persons are much more acutely sensible of pain than others; it is certain, that some bear it much better, both physically and mentally, than others. It is sometimes of importance to ascertain this; it may be done at times, by remarking, when it is necessary to apply a blister, how far the irritability, either mental or physical, is excited by it.

Pain is not an unmitigated evil; were it not for its warning, we should be liable, unwittingly, to inflict all manner of injuries upon our bodies. We see this in cases in which the sensibility to pain is impaired or destroyed, in consequence of disease of the brain, or of paralysis of the nerves of sensation. In the former case, more especially, as has already been alluded to in this work, serious results may follow forgetfulness of this fact; the feet, either of an adult or of a child, may be parboiled, or a mustard plaster may be kept on the skin till the most severe effects are produced, simply because the warning symptom of pain is, for the time being, in abeyance. This is no imaginary possibility, and it is one, the occurrence of which should deservedly bring down the censure of gross carelessness upon any one under whose management it might happen.

The absence of sensibility to pain, in connection with cases of apoplectic stupor, etc., is what we may expect; it sometimes, however, occurs whilst the mental faculties remain active; this, when it does happen, is generally after some severe accident, such as an extensive burn or the like, which seems to overwhelm the nervous system; in such cases, the severest operations may be undergone without suffering, but the symptom is one of the most fatal import. (See NERVES, OPIUM, ANÆSTHETICS, CHLOROFORM, ETC.)

PAIN IN THE SIDE. (See SIDE, PAIN IN THE.)

PAINT AND PAINTING, *paint* [Fr. *peinture*]. The injurious effects exerted upon the health of those who occupy newly-painted houses or rooms, is a circumstance too frequently overlooked. That living in, and especially sleeping in, rooms which have been newly-painted with “oil colors,” does occasion uneasy feelings, such as headache, etc., most can testify, but that the effect produced is more than transient uneasiness, is evident from the fatal influence the same circumstances exert upon birds, etc. (See LEAD.)

PAINTERS' COLIC. (See COLIC, LEAD.)

PAINTERS' PARALYSIS. (See DROP-WRIST, PARALYSIS, ETC.)

PALATE, *pal'-at* [Lat. *palatum*], the roof or upper part of the

mouth. In man it is composed of two parts—the hard palate, which forms an arch in the anterior part of the mouth; and the soft palate, which lies in the posterior part of the mouth, and consists of a membranous curtain of muscular and cellular tissue, from the middle of which hangs the uvula. (See UVULA.)

PALLIATIVE, *pal'-le-a-tiv* [Lat. *pallio*, I dissemble], is a term applied to anything which is used in order to palliate or relieve a disease, but which is incapable of curing it.

PALM-OIL, *pām-oil*, yielded by the fruit of a species of cocoa-nut, is brought to this country as a substance the consistence of butter. It is used as an external application for similar purposes as the olive and other oils, but is in no way superior.

PALMS. (See ARECA.)

PALPITATION OF THE HEART, *pal-pe-ta'-shun* [Lat. *palpitatio*; *palpito*, *palpitatus*, to palpitate], is unusual action of that organ, of which the patient is sensible.

Causes.—The liability of the heart's action to be increased by exciting emotions of the mind, almost of any kind, whether of fear or of joy, renders palpitation a very common affection, and when it occurs only under occasional circumstances like the above, one which cannot be considered otherwise than a perfectly natural occurrence. When, however, palpitation arises on every trivial occasion, either of mental emotion or of physical exertion, or without occasion at all, as it often does, even during rest in bed, then it requires attention, not solely on account of the discomfort it gives rise to, but because it may lay the foundation of disease of the organ which is so constantly subject to over-excitement. It is a matter of fact and interest, that heart affections have been observed to become more common after seasons of much public excitement of any kind, an effect traceable only to the frequent disturbance of the organ by the passions or emotions.

Palpitation of the heart, independent of disease, is most liable, indeed is very liable to occur in the young of both sexes, and in females particularly, soon after the age of puberty, in the latter, being very generally associated with hysterical tendencies (see HYSTERIA); in such cases, it is met with in its most aggravated forms, and often of such violence as to prove truly alarming. In any case, the tendency to palpitation is more common in the nervous temperament, and is increased by whatever gives undue predominance to that temperament, such as indolence, luxurious habits, and the indulgence of feelings and imagination artificially excited; and having once begun, it is kept up and aggravated by the continued attention with which the mind is apt to dwell upon the ailment; the individuals subject to it easily imagine themselves the subjects

of heart disease, watch every motion almost, of the heart, and thus, under the influence of their own imaginary fears, produce the very symptoms they dread.

Smoking to excess is a very common cause of palpitation among young men, who are apt to fancy that they are the subjects of heart disease, and are agreeably surprised to find that their bad symptoms vanish on their reducing their allowance of tobacco, or entirely relinquishing the habit. (See *TOBACCO*.)

Symptoms.—Palpitation may take the form either of a fluttering sensation about the region of the heart, perhaps extending into the throat, or it may amount to violent beating, either regular or irregular.

Treatment.—This nervous condition—for it is generally nothing else—is only to be got rid of by those measures which give a more vigorous and healthy tone, both to mind and body; the false excitement of imaginative literature—if it has been indulged in—must be exchanged for a more healthy mental aliment, something which calls for some healthy mental interest. This must, of course, be regulated in some measure by the habits and tendencies of the person, but where it will be adopted, the pursuit of some branch of natural history, botany, geology, or any other out-door occupation, such as gardening or sketching from nature, are the best pursuits; they occupy the mind, and draw it away from its own morbid fancies, even in the time of exercise, which is rendered doubly invigorating by the mental excitement which accompanies it: along with these means, a system of diet adapted to give good blood nourishment, should be adopted; heated and ill-ventilated rooms above all things, are to be avoided, early hours observed, and if a feather bed has been habitually lain upon, a firm hair or wool mattress substituted. One article of diet requires especial mention as being particularly injurious in such cases—tea of any kind is better avoided, but green tea is absolute poison; coffee is scarcely allowable, and cocoa or milk should invariably be substituted for either of the above more stimulant beverages; wine or malt liquor may be injurious, or the reverse, according to the previous habits of the patient and the nature of the case; if depression or debility follow their withdrawal, the tendency to palpitation is certain to be increased.

In addition to these measures, regulation of the bowels, the use of the shower-bath, or better, of the douche down the spine, and occasional mustard plasters on the chest or between the shoulders, are all useful; especially if, as frequently happens in cases of aggravated palpitation, any tenderness of the spine is found to exist. In cases of nervous palpitation, medicine is not much called for, unless to remedy other disorders, such as indigestion. Some patients derive much benefit from a

teaspoonful of the ammoniated tincture of valerian, taken twice or three times a day in water, to which, if there is much nervous irritability, 10 drops of tincture of hyoscyamus may be added; sal-volatile in teaspoonful doses is often useful, especially if there is much flatulence; or ether, either sulphuric or chloric, may be taken in 10 or 15-drop doses, either alone or with the above-mentioned remedies. The ethers, however, are more generally serviceable as remedies during an attack of palpitation, than when taken regularly. The opium and belladonna plaster, persistently worn over the heart, often affords great relief in this trouble. (See PLASTERS.) When palpitation is habitual and severe, a medical man should be consulted, especially if the mind is at all uneasy; his examination will detect the real nature of the affection, and his advice will be most likely to indicate with certainty, the remedies which will most quickly relieve that which, though but a functional disorder, may, if neglected, become an organic disease. With respect to palpitation dependant on disease of the heart, enough has been said in the article devoted to the subject of heart disease in general. (See HEART, PULSE; HEART, DISEASES OF THE, BATHS AND BATHING, DIET, DIGESTION, FOOD, EXERCISE, MENTAL EXERCISE, EXCITANTS, ALE, WINE; STIMULANTS, ALCOHOLIC; TEA, COFFEE, COCOA, DYSPEPSIA, COSTIVENESS, CATHARTICS, MINERAL WATERS, AIR, VENTILATION, HOUSES, HEALTH, ETC.)

PALSY. (See PARALYSIS.)

PANACEA, *pan-a-se'-a* [Gr. *pan*, all, and *akeomai*, I heal]. Panacea is a term applied to remedies which were believed to cure all diseases.

PANADA, *pa-na'-da* [Lat. *panis*, bread], a food for children and invalids, best made by boiling for a length of time in water, or milk and water, thin slices of bread, previously well dried in the oven. (See CHILDREN, COOKERY FOR THE SICK.)

PANAX QUINQUEFOLIUM, *pa'-naks kwin-kwe-fo'-le-um*, or ginseng, a perennial plant belonging to the Nat. order *Araliaceæ*. It is a native of most of the Middle and Northern States. It grows in rich soils and in shady situations, the stem reaching a height of a foot or a foot and a half. The root is the part commonly used. It is a mild tonic, and is used in loss of appetite, nervous debility and weak stomach. The dose of the powder is from 10 to 60 grains, and of the infusion from 2 to 4 fluid ounces, three or four times a day. (See INFUSION.)

PANCAKES, *pan'-kakes*. The well-known article of food; they are unsuitable for invalids. (See FAGOPYRUM.)

PANCREAS, *panj'-kre-as* [Greek, *pan*, all, and *kreas*, flesh], is a single glandular organ, situated transversely across the upper part of the abdomen, at the posterior part of the epigastric region, about on a level

with the last dorsal vertebra. It is of an irregular elongated form, from six to eight inches in length, an inch and a half in breadth, and from half an inch to an inch thick. The right extremity, or head, is curved upon itself from above downwards, and is embraced by the concavity of the duodenum. Its body tapers towards its left extremity, where it forms a tail, terminating at the spleen. The pancreatic duct extends from left to right through the substance of the pancreas, giving off numerous branches, and terminating in the common choledic duct, which conducts its secretions to the duodenum. Its object is believed to be to reduce fatty matters to the state of an emulsion, and thereby promote their absorption by the lacteals. The amount daily secreted by man is from five to seven ounces, and it is most abundant at the commencement of digestion. (See PANCREATINE, SPLEEN, DIGESTION.)

PANCREATINE, *pang'-kre-a-tin*. Pancreatine is the organic substance of the pancreatic juice where it occurs in great abundance. It coagulates by heat and by contact with sulphate of magnesia in excess. In its natural condition it is fluid, but has a considerable degree of viscosity. It is used medicinally in the shape of pancreatine wine and pancreatine emulsion, in those states of the system marked by deficiency of pancreatic juice and consequent difficulty in digesting fatty particles of food. Dose of the wine, 1 to 2 teaspoonfuls, three times a day.

PAPAVER SOMNIFERUM, *pa-pa'-vur som-nif'-e-rum*, or common garden poppy. It is supposed to be a native of Persia, but is cultivated in many parts of the world. The parts used in medicine are the capsules, and the juice from the unripe capsules. Their medical properties are much feebler than those of opium. They are often given internally to promote rest, and to calm irritation. The decoction forms a common fomentation, which is applied to burns and inflamed or excoriated parts. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; the solid extract, 3 to 10 grains; the syrup, 1 to 2 teaspoonfuls.

PAPER HANGINGS. (See ARSENIC IN WALL PAPER, WALLS AND WALL PAPERS.)

PAPILLA, *pa-pil'-la* [Gr. *pappos*, the sprout of down or buds]. Is a small eminence upon the surface of an organized body. The minute points visible upon the tongue, are called the papillæ. (See TONGUE.)

PAPPOOSE BERRY. (See BLUE COHOSH.)

PARACENTESIS, *par-a-sen-té-sis* [Lat.]. The operation of tapping for dropsy. (See DROPSY.)

PARALYSIS, OR PALSY, *par-al'-e-sis* [Gr. *paralysis*, relaxation]. is the loss of the natural power of sensation or motion, or both, in any part of the body.

Causes.—It is owing to some diseased condition of the nervous

system, either of the brain or spinal cord, or of the nerves. If the nerves of sensation or their centres be affected, there will be loss of sensation; if of motion, then loss of motion; to the latter of which, the term paralysis is by some exclusively applied. Each of these kinds may again be general or partial, or may have various degrees of severity. It may affect only one nerve or muscle, or it may affect a number. The most usual form is when one side or half of the body is deprived of sensation or motion, or both, called *hemiplegia*; *paraplegia* is when the lower part of the body is paralyzed, while the upper retains both sensation and motion; facial paralysis affects the muscles of the face; painters' paralysis, caused by the absorption of lead into the system, the muscles which extend the hand (see DROP-WRIST); and general paralysis is when the loss of nervous power extends over nearly every part of the body. In hemiplegia, the seat of the disease is one side of the brain, usually that opposite to the affected side of the body; in paraplegia, the lesion is within the spinal cord; and, when more limited in extent, the disease usually arises from some abnormal state of a particular nerve. Paralysis frequently follows apoplectic attacks, and this usually in its most severe and dangerous form. The prognosis must be looked on as extremely unfavorable when the attack is sudden, the paralysis extensive and complete, and the loss of consciousness protracted; while, on the other hand, when the paralysis advances gradually, there is more reason to hope for prolonged life, if not for a complete restoration of health. (See APOPLEXY.) Among the other causes that may give rise to paralysis are various injuries and diseases of the brain or spinal cord, as tumors, inflammation, external injuries, etc.

Symptoms.—When paralysis takes place without any previous apoplectic attack, the premonitory symptoms are a general torpor or lassitude, occasional giddiness, or a sense of weight and pain in the head and loss of memory. When it is the result of injury of the spinal cord, then, of course, the paralysis takes place instantly. Paraplegia sometimes lasts for many years without greatly interfering with any function except locomotion; but when it occurs during fevers, and advances rapidly, it is of very sinister augury, especially if it involves the sphincter muscles of the anus and bladder. Sometimes there is a gradual loss of power in the muscle or muscles affected; and in many cases the loss of power is preceded by severe pains in the part, cramps, a sense of numbness or tingling, and a curious feeling of coldness.

Treatment.—Paralysis is not a disease of itself, but only a sign of some disorder of the nervous system, probably at a distance from the parts affected. In each case, therefore, the cause of the disorder is to be

investigated, and the mode of treatment principally directed to its removal. In very many cases, however, little can be done, either in the way of cure or of alleviation. Where, as in many cases, it is owing to a deranged state of the general health, attention should, in the first instance, be directed to the best means of re-establishing this. With this view, the bowels should be kept gently open, and light nourishing diet prescribed; and tonic bitters, with, in some cases, small doses of some preparation of iron, have been found useful. Beyond this, regard must be had to the age and condition of the patient. If young and of full habit, bleeding may have to be had recourse to, more particularly if the head be much affected, and this followed by purgatives. The quantity of blood drawn should always be regulated by the strength of the patient and the degree in which the symptoms approach to those of apoplexy. If the patient be feeble and debilitated, the treatment should be confined to purgatives; and in both cases stimulants, both external and internal, as blisters, hot turpentine liniments, or electricity, etc. In weakly habits warm bathing is sometimes found useful. The special remedies used in this disease, viz: *nux vomica*, *strychnine*, *belladonna*, etc., are so powerful and possess such poisonous properties that they can only be safely used by a physician. In painter's paralysis, galvanism to the muscles twice a day, besides kneading, shampooing and rubbing them with flowers of sulphur, are useful as local remedies, together with the hot sulphur bath every other day. At the same time, iodide of potassium in 3 grain doses, three times a day, will aid in the elimination of the lead from the system. (See APOPLEXY, NERVOUS SYSTEM, SOFTENING OF THE BRAIN, COLD, EMACIATION, MENTAL EXERCISE.)

PARAPHYMOSIS. (See PHYMOSIS.)

PARAPLEGIA, *para-ple'-je-a*. Palsy of the lower portions of the body. (See PARALYSIS.)

PARASITE, *par'-a-site* [Gr. *para*, near to, and *sitos*, provisions]. Parasite means literally a hanger on at the tables of the great, hence it is used to designate animals found in the blood, intestines, muscles, etc., of man, or other living creatures, such as the *trichina* of the muscles, hydatids of the brain, intestinal worms, etc. The same name is also applied to plants which grow upon others, as moss, mistletoe, etc. (See TRICHINA, WORMS, ETC.)

PAREGORIC, *par-e-gor'-ik* [Gr. *paregoreo*, I mitigate or assuage]. The camphorated tincture of opium. Dose: for an infant under a year old, 5 to 12 drops, according to age; for a child two to four years old, 10 to 20 drops; ten years old, 30 drops; and for an adult, 1 to 3 teaspoonfuls. (See OPIUM.)

PAREIRA BRAVA. (See CISSAMPELOS.)

PARENT. (See GENERATION, MENSTRUATION, PREGNANCY, MARRIAGE, CHILD, STERILITY, HEREDITARY TENDENCY, INSANITY.)

PARONYCHIA. (See WHITLOW.)

PAROTID GLAND, *pa-rot'-id* [Gr. *para*, and *ous*, *otos*, the ear], is one of the glands which secrete the saliva. It is situated a little below, and in front of the ear, and fills up the space beneath the "angle" of the lower jaw. Its "duct" which conveys the saliva into the mouth, opens between the gum and the cheek opposite the second double tooth. It is this gland which is swollen, inflamed, and painful, in the "mumps." (See MUMPS.)

PAROTITIS. (See MUMPS.)

PAROXYSM, *par'-oks-izm* [Gr. *paroxusmos*], is a fit of periodical exacerbation of a disease that occurs at intervals, or has decided remissions or intermissions, as in the case of ague, gout, insanity, etc.

PARSLEY, *pärs'-le*, or *Petroselinum Sativum*, an herb which plays an important part in cookery. It has diuretic properties.

PARSLEY SEEDS [*Apium Petroselinum*]. This drug is aperient and diuretic, and is occasionally used in nephritic and dropsical affections. Its most valuable uses, however, are as a substitute for quinine in malarial diseases; and as an emmenagogue in suppression of the menses and difficult menstruation. It is also of value in the night sweats of consumption. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces, three or four times daily. (See INFUSION.)

PARSNIPS, *pärs'-nips* [corrupted from Lat. *pastinaca*], contain a considerable proportion of saccharine matter, and are nutritious, but often disagree with weak stomachs. They are considered diuretic.

PARTRIDGE BERRY. (See GAULTHERIA PROCUMBENS.)

PARTURITION, *pär-tu-rish'-un* [Lat. *parturitio*; *parturio*, to bring forth]; called by the French *accouchement*. It consists in the expulsion of the foetus and its appendages from the cavity of the uterus, and ends in the complete separation of the child and the mother. Parturition, commonly called *labor*, occurs, as a rule, at the end of nine calendar months, or two hundred and eighty days from the disappearance of the last menstrual discharge; the direct exciting cause, whether maternal or ovuline, is still a matter of question. The chief expulsive force brought into action in the operation is the contraction of the womb itself, aided by the contraction of the abdominal muscles.

For convenience in study, the process is divided into the *first*, *second* and *third* stages. The precursory symptoms of labor are sinking of the abdomen, a frequent desire to pass water, griping or diarrhœa, slight uterine contraction, and a mucous discharge from the vagina, called by

the nurse "a show;" the commencement of labor, however, may be said to date from the time the contractions begin to get painful, recur at regular intervals, and gradually increase in frequency and power. The *first* stage continues from the commencement of labor until the discharge of the liquor annii, commonly known as "the breaking of the waters," which is generally soon followed by the expulsion of the head of the child from the uterus. The *second* stage commences at the conclusion of the first, and ends with the expulsion of the child from the mother. The *third* stage includes the detachment and expulsion of the after-birth and membranes, called the "secundines." In the first stage, the pains are described as "cutting or grinding pains," and during the second stage, "bearing down or forcing pains," indicating the different nature of the work accomplished during the two periods.

Different classifications of parturition have been made by different authors, according to the meaning they attach to the term "natural labor." The following is Churchill's definition, and his classification based thereon: "Natural labor is applied to those cases in which the head presents, and descends regularly into the pelvis; where the process is uncomplicated and concluded by the natural powers within twenty-four hours (each stage being of due proportion), with safety to the mother and child, and in which the placenta is expelled in due time." By the term "presentation," is meant that part of the child that presents at the brim of the pelvis; by the term "position," the relation which some part of the presentation bears to the pelvis. The principal presentations are the head, the breech, the knee, the foot, the elbow, and the hand.

DR. CHURCHILL'S CLASSIFICATION OF PARTURITION.

CLASS I.—NATURAL LABOR.

CLASS II.—UNNATURAL LABOR.

(a.) *From abnormal condition of the expulsive force.*

- ORDER 1. Tedious labor.
2. Powerless labor.

(b.) *From abnormal condition of the passages.*

3. Obstructed labor.
4. Distortion of pelvis.

(c.) *From abnormal condition of the child.*

5. Malpositions and malpresentations.
6. Plural births and monsters.

CLASS III.—COMPLEX LABOR.

- ORDER 1. Prolapse of cord.
2. Retention of placenta, or after-birth.
3. Flooding
4. Convulsions.
5. Lacerations.
6. Inversion of the uterus.
7. Sudden death.

The management of natural labor and the duty of the nurse during both labor and convalescence have been described under the article CHILDBED, which see. (See also PELVIS, AFTER-BIRTH, AFTER-PAINS, CÆSAREAN OPERATION, NURSE.)

PASSION, OR ANGER, *pash'-un*. It is sufficient here to allude to the serious effects which may follow the indulgence of violent passion. Those who give way to it are often themselves sensible, either during the paroxysm, or at its close, of unusual sensations about the region of the heart. There can be no question that this important organ is much influenced by these violent mental emotions, one of which may lay the foundation of that disease, which another may ripen into sudden death. And what a death! (See PASSIONS, TEMPER; HEART, DISEASES OF THE.)

PASSIONS, [Lat. *passio*; *patior*, *passus*, to suffer]. The passions of the mind are divided into *exciting*, *depressing*, and *calming*, and the two former are again divided, in a medical point of view, into such as act suddenly and with temporary violence, or more slowly and permanently.

1. *Exciting*. (a) In a violent degree; as rage, anger, intense enthusiasm. (b) More moderately; as joy, emulation, desire, hope, benevolence, love, charity.

2. *Depressing*. (a) In a violent degree; as terror, grief, despair. (b) More moderately; as fear, jealousy, hatred, envy, resentment.

3. *Calming*; as veneration, admiration, contemplation.

Persons of strong, active imaginations, sanguine in temperament, and eager in their pursuits and expectations, are most liable to, and suffer most from, the violently *exciting* passions. The effects are often apoplexy, palsy, hemorrhage, jaundice.

The *depressing* passions are, in different degrees, sedative. The more violent ones are sometimes fatal in a moment; and the less violent slowly undermine the constitution, weaken every function, and produce indigestion and dropsy.

The moderately *exciting*, and the *calming* passions, under proper control, are eminently conducive to cheerfulness of mind and health. (See EXCITANTS, SEXUAL EXCESSES, TEMPER, PASSION OR ANGER, JOY, FEAR; HEART, DISEASES OF THE; HEALTH, ETC.)

PASTRY, *paas'-tre*, an article of diet unfit for those who have weak digestive powers, those of sedentary habits, or those who are inclined to be bilious. (See CONFECTIONERY.)

PATELLA, OR KNEE-PAN, *pa-tel'-la* [Lat. diminutive of *patina*, a pan]. The knee-cap, or knee-pan, is the small, somewhat oval, or heart-shaped bone, which is contained with the tendon of the extensor muscles of the lower extremity, serving at once to protect the important

point which it covers, and to give proper direction to the muscular power on the fore part of the limb.

The knee-cap is very liable to be fractured, or rather torn across, in falls where the individual, in the endeavor to save himself, violently exerts the muscles of the limb; a painful shock, as from a blow, is felt, and the power of extending or advancing the limb is instantly lost; when examined, the deficiency occasioned by the absence of the upper half of the knee-cap, is at once apparent, this being drawn more or less up the fore part of the thigh by the action of the muscles. When the knee-cap is broken, as it sometimes is by direct violence, the displacement is not so great, but the accident is generally more serious, owing to the violence injuring the knee-joint generally.

The treatment of transverse fracture of the knee-cap might, with care, be managed by an unprofessional person in the absence of a medical man. The principal object in the treatment of this accident is, to remedy the displacement or drawing upwards of the upper fragment of the bone, which takes place in consequence of the muscles of the thigh with which it is connected, being set free from the counteracting power of their attachment to the upper part of the bone of the leg, their common tendon in which the knee-cap is imbedded, being torn through, as well as the bone.

The first part of the treatment of this accident is to place the entire lower limb on an inclined plane made of any convenient material, and cushioned of course; this being done, and the displaced fragment drawn as nearly as possible into its natural position, and in contact with the lower fragment which does not undergo displacement, some additional means must be employed to keep the parts steady; for this purpose, many different kinds of apparatus have been used.

A good apparatus is formed by laying a strip of stout bandage, longitudinally, on each side of the injured bone; these strips are then secured by a few turns of two circular bandages, passed one round the lower part of the thigh, the other round the upper part of the leg, close above and below the fractured bone, the ends of the longitudinal bandages being then tied, the apparatus is complete. It will be advisable to add to the inclined plane some additional protection to obviate the chance of the limb slipping off the apparatus. It has been observed, that those who have suffered fracture of one knee-cap, are more liable than others to suffer from a similar accident on the other leg. This is, probably, accounted for by the fact, that in a large proportion of cases, the two fragments of the patella which has been fractured, are not perfectly closely united, and that the person is, therefore, more liable to suffer a fall similar to that which produced the first accident. Some

individuals, moreover, are more liable to suffer from rupture of the tendons generally than others. The knee-cap sometimes suffers displacement. (See KNEE.)

PATENT MEDICINES. (See QUACKERY, NOSTRUM.)

PATHOLOGY, *pa-thol'-o-je* [Gr. *pathos*, disease, and *logos*, discourse]. The science of the nature of disease. (See MEDICINE.)

PEA, *pe* [Lat. *pisum*]. The common garden pea, in its fresh or green state, and when eaten young, is wholesome and digestible, but when it has advanced towards ripening, the outer skin becomes very tough and indigestible, and passes through the bowels unacted upon by the digestive organs—in this condition it is very liable to lodge in the folds or sacculi of the colon, or large bowel. If old peas are eaten regularly, and the bowels are at all torpid, a large accumulation of these pea-skins may take place, and at length give rise to troublesome irritation and diarrhoea. A dose of compound colocynth pill, or of castor-oil, is the best remedy. Dried peas can, of course, only be used as human food with advantage when reduced to softness, or when ground into flour; when thus rendered digestible, they contain more real nutriment—that is, plastic matter—adapted to building up the animal frame, than even wheat or oats.

PEACH, *peeck* [Lat. *persicus*], the well-known fruit is, when ripe, sufficiently digestible if eaten in moderation. The peach tribe derive their chief interest, in a medical point of view, from the hydrocyanic, or prussic acid, which is obtained from various parts of the plants by distillation. Peach kernels yield it largely, also the blossoms and the young leaves; preparations from these, therefore, must be employed with great caution. An infusion of the dried leaves of the peach has been used in cases of worms.

PEACH TREE. (See AMYGDALUS.)

PEAR, *paar* [Lat. *pirus*, *pyrus*, a pear tree]. Pears are apt to disagree with many persons.

PEARLASH, *perl'-ash*, a common name for the impure carbonate of potash. (See POTASH.)

PEARLASH, POISONING BY. (See ALKALIES, POISONING BY.)

PEARL-BARLEY. (See BARLEY.)

PECCAN NUTS. (See CARYA.)

PECTORAL, *pek'-to-ral* [Lat. *pectoralis*, from *pectus*, the breast], of or belonging to the breast; as pectoral medicines, those which relieve diseases of the chest; the pectoral muscles, major and minor, which are situated on the anterior part of the chest.

PEEL, ORANGE. (See AURANTII CORTEX.)

PELLITORY. (See ANACYCLUS.)

PELVIS, *pel'-vis* [Gr. for a basin], literally means a basin, the term having been given to the particular region of the body from its fancied resemblance to that utensil. The pelvis is the irregular structure of bone which supports and rests upon the thigh bones, the round "heads" of which are fitted into the cups, or cavities. (See HIP-JOINT.) The pelvis is composed essentially of three different bone masses; two of these, the *ossa innominata* form, together, the sides and forepart of the pelvic cavity, being united in front. The back part of the pelvis is formed by the *os sacrum*, a triangular bone, which fits like the wedge or key-stone of an arch between the two side bones of the structure. On the top of this bone, which appears, and may be regarded to be a number of vertebræ, or spine bones, cemented together, the spine is placed; its central canal, or cavity, which incloses the spinal marrow, being continued down the centre of the sacrum—in which the holes—give passage to small nerves. Although the side bones in the adult are united into one piece, they are not so in early life, but are in three divisions; for the sake of convenience in describing, etc., anatomists retain these distinctions even in the adult bone. A little consideration will show any one how much strength is imparted to the important bony construction above described, which is, moreover, so placed or balanced, with respect to other portions of the body, as to throw the weight on those portions of itself best calculated to sustain it, and the whole upon the thigh bones in the most advantageous manner possible. Further, the whole structure of the pelvis is made as light as can be compatible with strength. The sacrum is the lightest bone of the body for its size; and in the arrangements of these pelvic bones generally, wherever ligament can be substituted for bone, we find it is so; thus, for instance, the two holes instead of being filled up with bone, have merely a thin, light, ligament stretched across.

There is considerable difference in shape between the male and female pelvis; the latter being more broad, ample, and expanded than the former, in every way—a matter of necessity in child-bearing particularly, so as to afford sufficient room for the passage of the infant, the head of which is for the most part adapted to pass through the pelvic cavity by a series of turns. The cavity of the pelvis is inferior to, but continuous with that of the abdomen; the contents, or viscera, of the two being continuous. (See ABDOMEN.) Fracture of the bones of the pelvis occasionally occurs in consequence of accident; it is always a serious mishap, from the circumstance, that the violence which is capable of fracturing these strong bones, must, in all probability, injure some of the important parts—the bladder especially—which they naturally surround and guard. The accident is not likely to be detected by an unprofessional

person; if suspected, soothing measures to the painful parts, hot fomentations, poultices, and leeches would be advisable; the body being placed in the most easy position, and perhaps a bandage a foot broad sewed around the hips, surgical assistance being procured without delay. (See ANATOMY, ABDOMEN, BLADDER, HIP-JOINT, SPINE.)

PENNYROYAL, AMERICAN. (See HEDEOMA PULEGIOIDES.)

PEPPER, BLACK. (See PIPER NIGRUM.)

PEPPERMINT. (See MENTHA PIPERITE.)

PEPSIN, *pep'-sin* [Gr. *pepto*, I digest], a peculiar albuminoid existing in the gastric juice, to which, in conjunction with the free acid, the solvent powers of that fluid seem owing. It is extracted in large quantities from the gastric juice of the pig, sheep, and calf, and used in medicine as a digestive. That of the pig (*pepsina porci*) is stronger than any other.

This substance is regarded as a positive anatomical ingredient of the gastric juice, both essential to its constitution and physiological action. Introduced into the system it increases the appetite, allays irritability of the stomach, and promotes changes essential to healthy digestion of the nitrogenous elements of food. Dose, 10 to 15 grains, immediately before or after meals. (See PEPsin, WINE OF.)

PEPSIN, WINE OF. This elegant cordial contains the digestive principle of the gastric juice held in solution by pure sherry wine, and is acceptable to even those of the most delicate organizations. No more grateful and efficient medicine has been tried in dyspepsia and kindred diseases. Dose, from a $\frac{1}{2}$ to 1 wine-glassful should be taken just before or immediately after meals. (See PEPsin.)

PERCOLATION, *per-ko-la'-shun* [Lat. *percolo*, I strain or filter], a species of filtration employed in the making of tincture (which see). It is also sometimes applied to the animal secretions, from the action of the glands being thought to resemble that of a strainer.

PERCUSSION, *per-kush'-un* [Lat. *percutio*, I strike], is the striking a part of the body in order to determine by the sound the condition of the subjacent organs. Every one knows that different kinds of substances, when struck, give out very different sounds. A wooden cask, containing air only, is resonant when struck; fill it half full of water, and the lower part will render a flat sound, and the upper empty portion a hollow sound—less hollow, however, than when the vessel contained no water; fill it with water, and the whole is dull on percussion. It is the same with the human chest; if the blow fall over a portion of the healthy lung, you will produce a resonant or hollow sound; if the lung has lost its spongy character, or its place is supplied by some more solid or inelastic substance—by fluid for example—you will hear a dead sound. Some

nicety is necessary in the manner of striking the chest, so as to properly elicit the sound; and various contrivances have been recommended for that purpose; but we believe that none of them are preferable to the fingers when properly used. One or two fingers of the left hand are to be laid flat on the part to be examined, and to be struck lightly, but rather smartly, with the ends of the three first fingers of the right hand, set close together on the same level. Percussion is also of use in determining the state of certain organs of the abdomen. (See AUSCULTATION, STETHOSCOPE, ETC.)

PERFORATION, *per-fo-ra'-shun* [Lat. *perforo*, to pierce]. The term in medicine is chiefly used to express the formation of an aperture in some portion of the coats of the alimentary canal, which allows the escape of a portion of the contents of the stomach or bowels into the cavity or sac of the peritonæum, thereby causing agonizing pain, severe inflammation, and in almost every instance death. As the escape of a small portion of the contents of the canal is sufficient to occasion these severe symptoms and fatal consequences, a very small opening may be the occasion of death. The most common sites of the perforation are the stomach, or the small bowel near its junction with the large; in the latter case, usually occurring in the progress of fever, and being occasioned by ulceration. The occurrence of perforation in the stomach is often for some time preceded by dyspeptic symptoms, pain, especially after food, and perhaps vomiting. Females, especially those of a weak, lymphatic, or scrofulous constitution, are more liable to it than males; but it may happen in all constitutions, and without previous symptoms.

When perforation occurs, and the contents of some part of the canal escape, there is sudden, intense, agonizing, burning pain, perhaps vomiting, and there is extreme depression or collapse of the system generally. In such a case, the hope of saving life is very faint, even under the most skilful treatment, and of course a medical man should at once be procured. All that unprofessional persons can do is to mitigate the intense agony, which opium alone can relieve. Full doses of whichever of its preparations are most easily procurable may be given, and repeated at short intervals, until some relief is obtained. Heat to the bowels may afford some comfort. If there be much vomiting, the opium will, as in all similar cases, probably be best retained if given solid, in the form of pills—of 1 grain each in such a case—opiate injections, containing each 30 to 40 drops of laudanum, may be serviceable. When there is great depression, if the person survives some time, stimulants, wine or brandy, are given. (See INFLAMMATION.)

PERICARDITIS. (See HEART, DISEASES OF THE.)

PERICARDIUM, *per-e-kar'-de-um* [Gr. *peri*, about, and *kardia*, the heart], is the membrane that encloses the heart, which see.

PERICRANIUM, *per-e-kra'-ne-um* [Gr. *kranion*, the skull], the membrane which invests and adheres to the bones of the skull; in other bones the corresponding membrane is named the periosteum.

PERINÆUM, *per-e-ne'-um* [Gr. *naio*, to flow]; the space at the fork of the lower limbs, between the fundament and the generative organs. At this spot the operation of cutting for the stone, in males, is usually performed. Falls, with the legs astride any body sufficiently narrow to allow it to bruise the perineum, are apt to be followed by serious consequences, bloody urine, or complete stoppage. For the same reason, the practice of "hoisting,"—carrying an individual astride upon a piece of wood—either in the way of practical joke or punishment, is seriously to be condemned.

PERIODICITY, *pe-re-o-dis'-ete* [Fr. *periodicite*]. The recurrence at regular intervals of marked phenomena in the progress of vegetable or of animal life, is at once one of the most interesting, one of the most certain, but at the same time—as to cause—one of the most obscure facts in the range of scientific inquiry. Among plants, a daily periodicity is so well-marked, both as regards their opening and their closing, that it is familiar to all—even the children know when the daisies and the clover "go to sleep;" and the famous Linnaeus constructed, or rather arranged, what he called the floral clock, from the times of the opening and shutting of certain plants. It is sufficient to allude to the different, but regular times of leafing and flowering of tree and plant, to the certain returns of "seed time and harvest," to confirm, that what holds good in the revolution of the twenty-four hours, does so throughout the year. In the animal kingdom periodicity is equally well-marked, each kind carries its young a certain time; with slight variation, the changes from the cradle to the grave in man, progress in well-marked periodical order. What is observed in health is seen also in disease. The regular return of the paroxysm in the quotidian, the tertian, the quartan ague; the regularity with which the eruptions of scarlet fever, small-pox, or measles, appear and decline, all tell of the same thing; the nightly hectic of the consumptive patient does so also. These are well-marked instances, so much so, that they cannot fail to attract attention, but there are doubtless, numberless others in the progress of disease, equally interesting and important, but unobserved. The causes of periodical changes are generally very obscure; some, unquestionably, such as the lunar influences upon the tides; the effect of prolonged heat and light, as from the sun, in stimulating vegetation, we can readily distinguish and appreciate, but the majority are beyond our ken. Some may be

connected with the hidden springs of life, others are more than probably linked with the barometric and electric changes, which are continually going on in the diurnal revolution of the twenty-four hours.

PERIODS, SUPPRESSED. (See MENSTRUATION.)

PERIOSTEUM, *per-e-os'-te-um* [Gr. *peri*, and *osteon*, a bone], is the membrane that covers the bone. (See BONE, ANATOMY.)

PERISTALTIC, *per-e-stal'-tik* [Gr. *peristello*, I contract], is a term applied to that peculiar motion of the intestines by means of which their contents are carried onwards. It is a series of contractings and relaxings, the different parts of the bowels rising and falling alternately, so as to resemble the motions of a worm or snake.

PERITONÆUM, *per-e-to-ne'-um* [Gr. *periteino*, I stretch round], is the thin serous membrane lining the abdominal cavity, and enveloping the contained organs, so as to keep them in their proper places. Like the other serous membranes, it is an enclosed sac, covering, but not containing, the organs in its cavity, with its internal surface smooth and shining, and moistened by a serous fluid for aiding the natural movements of the organs upon each other. The folds which surround the small intestines constitute the *mesentery*: that which hangs down from the stomach, and is then reflected upwards and backwards to the colon, is the *omentum*. (See INFLAMMATION, PERITONITIS.)

PERITONITIS, OR INFLAMMATION OF THE PERITONÆUM, OR SEROUS COVERING OF THE BOWELS, *per-e-to-ni'-tis*.

Causes.—The chief causes of this disease are exposure to cold and wet, the abuse of stimulants, or of strong purgative medicines, constipation, an overloaded condition of the alimentary canal, and childbirth. The peculiar form of peritonitis which follows parturition, or childbirth, will be described under the head of PUERPERAL FEVER (which see).

Symptoms.—Like other inflammatory diseases, it is attended with the usual symptoms of fever, languor, depression, shivering, and is followed by heat, thirst, and quick pulse. Either simultaneous with these symptoms, or shortly after, there is usually intense cutting or burning pain in the abdomen; general, or confined to one spot, according to circumstances. This pain is much increased by pressure, so much so, indeed, that even the weight of the bed-clothes cannot be borne, and the patient lies on the back with the knees drawn up—an attitude very characteristic of this disease—in order to keep off the weight of the clothes. At this time, the pulse, which is very quick, is usually of a peculiar hard, wiry character. The symptoms of peritoneal inflammation of the bowels are usually so well marked as to be distinguishable even by an unprofessional person: when they do occur, especially under circumstances already pointed out, as likely to occasion them, it need scarcely be said here that a medical

man should be called with the shortest possible delay. The disease is most serious and dangerous, often very rapid in its course, and cannot too soon be submitted to the active treatment which skill and experience alone can venture upon.

Treatment.—Place the patient in a warm bath for half an hour, and then apply hot fomentations by means of soft flannels wrung out of hot water; a few drops of turpentine may be sprinkled over each cloth, or a tablespoonful of turpentine mixed with each quart of hot water. The fomentations must be applied assiduously, or they do more harm than good. If they can be procured, a dozen leeches may be applied over the abdomen, followed by a light, warm linseed meal or slippery elm poultice. The bowels must be relieved by a dose of 2 tablespoonfuls of castor-oil, with 15 to 20 drops of laudanum added, to relieve the pain, but strong purgatives must be scrupulously avoided. Warm injections from time to time, not more than a pint at a time, not only keep the bowels clear, but act as an internal fomentation. If the pain is very severe, they may contain from 20 to 30 drops of laudanum. Opium is the sheet anchor in this dangerous disease; 1, or if the pain is very severe, 2 grains may be given every six hours, until the doctor comes, or until the severity of the pain is mitigated. The diet must, of course, be reduced, and nothing but thin gruel, or barley or toast water, be allowed.

CHRONIC PERITONITIS sometimes follows an acute attack, but more frequently is an independent affection. The symptoms of this form are more obscure than those of acute peritonitis, coming on more gradually and insidiously; there is pain in the stomach, with some fulness and distention, the pain is increased by pressure and all kinds of movements on the part of the patient, the functions of the alimentary canal become disturbed, the sufferer is troubled with sickness and nausea, the bowels are constipated, and there is loss of appetite.

This affection generally occurs to persons of the scrofulous diathesis, and in many instances the inflammatory action is set up by the presence of myriads of little scrofulous tubercles which have been deposited from the blood into the affected membrane.

Treatment.—A few leeches may be applied to the abdomen, and followed by soft and warm linseed poultices; opium may be given internally, and when the disease has assumed a still more chronic form, blisters applied to the surface of the abdomen will be of great service, and the compound iodine ointment may be rubbed in with advantage. Cod-liver-oil may be given to nourish the strength of the patient and improve his general health. (See PERITONÆUM, INFLAMMATION, ENTERITIS, ETC.)

PERMANGANIC ACID, *per-man-gan'-ik* ($Mn_2 O_7$).—If a solution of manganate of potash be largely diluted with water, it gradually

changes from green to violet, from the manganic acid passing to a higher stage of oxidation, and permanganate of potash is formed. It crystallizes in fine dark purple prisms, soluble in 16 parts of water, and forming a magnificent crimson solution. Permanganate of potash has received a most important application as a deodorizing and disinfecting agent, and is known as Condly's disinfecting fluid. From experiments it seems to contain oxygen in the ozonic form, which is immediately liberated on the approach of organic matter in the process of decomposition. (See DISINFECTANTS.)

PERSIMMON. (See DIOSPYROS VIRGINIANA.)

PERSONAL HEALTH. (See HEALTH, HEALTH RESORTS, SANITARY SCIENCE, HOUSES, CLIMATE, AIR, CLOTHING, FOOD, DIET, DIGESTION, EXERCISE, LIFE, LONGEVITY, TOBACCO; STIMULANTS, ALCOHOLIC; ETC.)

PERSONS FOUND DEAD. (See DEATH.)

PERSPIRATION, *per-spe-ra'-shun* [Lat. *perspiratio*, from *perspiro*, I breathe through], is that watery vapor which is constantly passing off through the pores of the skin, and is distinguished into insensible and sensible; the former passing off in the form of invisible vapor; the latter being more profuse and collecting in drops on the surface. It is calculated that about three pounds of water are daily conveyed to the surface of the body as insensible perspiration, and this quantity is very considerably increased during violent exercise or in hot weather. Its expulsion from the system is very important; for whenever it is diminished or suspended, serious derangements may follow.

Those medicines which promote perspiration are called diaphoretics. (See DIAPHORETICS, DOVER'S POWDER, JAMES' POWDER, ANTIMONIAL POWDER, ETC.)

PERSPIRATION OF FEET AND ARM-PITS, FETID. (See CARBOLIC ACID, ALUM, CLAY.)

PERTUSSIS. (See WHOOPING COUGH.)

PERU, BALSAM OF. (See MYROSPERMUM, BALSAM.)

PERUVIAN BARK. (See CINCHONA.)

PESSARY, *pes'-sa-re* [Gr. *pezzo*, to soften], an instrument used to support the womb when displaced. (See WOMB.)

PESTILENCE. (See EPIDEMIC, PLAGUE, CHOLERA, YELLOW FEVER, ETC.)

PESTLES. (See MORTARS AND PESTLES.)

PETECHIÆ, *pe-te'-ke-ē*, are spots which appear upon the skin in certain forms of fever. They often resemble and are mistaken for flea-bites. Petechiæ frequently assume different colors and forms, differences which have lately been assumed as one of the distinctive marks between the typhus and typhoid forms of fever.

PETROLEUM, *pe-tro'-le-um* [Gr. *petros*, a rock, and *elaion*, oil], commonly called rock-oil and Barbadoes tar, a liquid found flowing from the clefts of rocks, and now procured in great abundance from the oil wells of this continent. For sprains, bruises, chilblains, burns, scalds, and frost-bites, kerosene—one of the products of petroleum—is one of the most useful of all liniments. Many cases of both rheumatism and sciatica have been materially benefited by its use. Internally it has been successfully used in doses of 10 to 20 drops in mucilage, three or four times a day. Coal-oil, or kerosene, doubtless, from the presence of carbolic acid, acts as a preventative of ague. It is a well-known fact, that persons living in the immediate vicinity of oil-wells or petroleum springs do not suffer from this disorder. Vaseline or petroleum jelly is said to be useful in the prevention and cure of baldness. (See VASELINE, BURNS AND SCALDS, FROST-BITES.)

Too much caution cannot be exercised in handling kerosene and other preparations manufactured from petroleum. Many of these, although advertised as both safe and non-explosive, are neither one nor the other, and every year scores of fatal accidents occur through the prevailing negligence of those who handle them. The fact that a lighted match can be held to them without causing an explosion proves nothing, for the explosion is invariably caused by the vapor which arises from the oil becoming mixed with a certain proportion of atmospheric air. Lamps should be kept pretty nearly full; it is when almost empty that explosions are at all likely to occur. Of course non-explosive oils can be obtained, but the extra refining costs something, and they are frequently pushed out of the market by the dangerous article because it is cheap.

PETROLEUM JELLY. (See VASELINE.)

PHAGEDENIC, *faj-e-den'-ik* [Gr. *phago*, I eat], is a term applied to ulcers that eat or destroy very rapidly.

PHALANGES, *fa-lan'-jeez* [Gr. a battalion], the name given to the small bones of the fingers and toes. (See FOOT, HAND.)

PHARMACOPŒIA, *fär-ma-ko pe'-ya* [Gr.], a book of directions for compounding medicines. This term is usually restricted to an authoritative work issued by a medical college, or other governing body, to secure uniformity in the preparations used by its members; the terms *dispensatory* and *formulary* being left for medical receipt-books which have not an authoritative character.

PHARMACY, *fär'-ma-se* [Gr. *pharmakeia*, medicament, whether salutary or poisonous], the art of preparing medicines. (See MATERIA MEDICA.)

PHARYNGITIS, *far-in-ji'-tis*, inflammation of the pharynx. (See PHARYNX, SORE THROAT.)

PHARYNX, *far'-inks* [Gr. for the throat, from *phegein*, to convey], is the muscular funnel-shaped bag at the back part of the mouth, which receives the masticated food, and conveys it to the œsophagus. It is broadest about the middle, being constricted at either end, more particularly below, where it terminates in the œsophagus.

PHENE. (See BENZOLE.)

PHLEBITIS, *fle-bi'-tis* [Gr. *phleps*, a vein], inflammation of the veins. (See VEINS.)

PHLEBOTOMY, OR VENESECTION, *fle-bot'-o-me* [Gr. *phleps*, a vein, and *temno*, I cut], is the opening of a vein for the purpose of taking away blood. (See BLEEDING.)

PHLEGM, *flem* [Gr. *phlegma*, from *phlego*, to burn], a term usually applied to any aqueous or excrementitious bronchial mucus, or the thick viscid matter secreted in the throat, and discharged by coughing. (See MUCUS.)

PHLEGMASIA DOLENS. (See MILK LEG.)

PHOSPHATES, *fos'-fats* [Lat. *phosphas*], compounds of phosphoric acid. The principal phosphates used in medicine are those of lime, soda, potash and iron. A syrup made from these four is known as chemical food. It has been suggested in cases of debility, or constitutional languor, where the functions of the system lack their normal vitality, and yet these morbid symptoms are traceable to no one single positive cause. Its use, though, is advised only in those cases where the simple syrup of phosphate of iron fails to bring about the desired effect. But the value of the several ingredients as nutritive tonics is too well-known to require a lengthy notice of the therapeutic properties of the compound. Dose, $\frac{1}{2}$ to 1 teaspoonful. (See LIME, POTASH, SODA, IRON, PHOSPHORUS.)

PHOSPHORIC ACID, *fos-for'-ik*, is produced by the rapid combustion of phosphorus in oxygen or atmospheric air. When the oxygen is perfectly dry, it is obtained as a mere white, flocculent, but very deliquescent powder, hissing when thrown into water, and forming with it hydrated phosphoric acid. Diluted phosphoric acid is used in medicine as a tonic and refrigerant, having similar properties to sulphuric acid. It is said to correct the phosphates in the urine, and is given with phosphate of lime in rickets. Dose, from 10 to 30 drops, largely diluted with water.

PHOSPHORUS, *fos'-fo-rus* [Gr. *phosphoros*], symbol P, equivalent 32, specific gravity of vapor 4.355. Phosphorus is found in nature only in a state of combination, chiefly in the form of phosphate of lime, which forms the principal constituent of apatite, phosphorite, coprolites, etc. It exists in large proportions in the bodies of animals; in the blood, in the urine, in the hair, in the nervous tissues, and in the bones, of which

phosphate of lime forms a large constituent. Animals obtain the phosphate necessary for the formation of their tissues, etc., from plants; and plants draw their supply from the soil. Phosphorus appears to be a very necessary ingredient in the brain and other centres of nervous action. Phosphorus is a soft waxy-looking solid, burning in the air, and emitting white vapors having a garlicky odor. Its specific gravity is 1.83 at 50° Fahr. It fuses at 111.5°, and may be distilled unchanged, in close vessels, at 550°. It becomes luminous from slow combustion in dry air, and frequently inflames spontaneously. It may, however, be cut and handled with impunity under water. Phosphorus unites with oxygen in four proportions, forming oxide of phosphorus, hypophosphorous acid, phosphorous acid, and phosphoric acid. Hypophosphorous acid forms an uncrystallizable syrup, with feebly marked acid properties. It is interesting from forming a series of salts much used in medicine, the hypophosphites. (See HYPOPHOSPHITES.)

PHRENITIS, *fre-ni'-tis* [Gr. *phrenes*, from *phren*, the mind], is inflammation of the brain, or any of its membranes. (See BRAIN, DISEASES OF THE.) The term phren or phrenic was anciently applied to the diaphragm, as being the supposed seat of the soul. From the same root we have the term phrensy.

PHRENOLOGY, *fre-nol'-o-je* [Gr. *phrenes*, and *logos*, an account). Literally a description of the mind; applied by Gall and Spurzheim to a new doctrine of mental philosophy, founded on a presumed knowledge of the functions of different portions of the brain, which, by their peculiar developments, modified the form of the head, so as to make it an indication of character. According to this theory, the head may be regularly mapped out, and the mental peculiarities of the individual at once determined by a comparison of its different parts. Dr. Combe, who followed Spurzheim, and is considered the most eminent authority on the subject, divides our faculties into three classes—the intellectual or perceptive, the sentiments and emotions, and the animal propensities. The front part of the head is assigned to the first of these, the middle and upper parts to the second, and the hinder part, including the cerebellum, to the third. Each of these divisions is subdivided into minute parts, which are supposed to cover special organs assigned to distinct faculties or feelings.

Much stress has been laid upon the advantages to be derived from phrenology as a basis for a system of medical psychology. If, as has been asserted, we can ascertain, by certain cranial developments, the faculties and feelings, and can, by a proper course of treatment, repress the growth of such as are of a bad tendency, and encourage that of those of an opposite nature, we shall be able to do much towards producing a

perfect character; and, as a sound mind will go far to produce a sound body, we shall thus also greatly conduce to a good state of physical health. But we do not find that this beautiful theory (for such it certainly is) can be brought into practice, without disappointing the expectations of those who have built upon it hopes of ameliorating the condition of their fellow creatures. Hence its utility, at all events, in the present state of the science, if we may so call it, is very questionable, either as a guide for educating the healthy mind, or for remedying its diseased condition. (See PHYSIOGNOMY, COUNTENANCE.)

PHTHISIS, *thi'-sis*, or *ti'-sis* [Gr. *phthio*], pulmonary consumption. (See CONSUMPTION.)

PHIMOSIS, *fi-mo'-sis*, a constriction of the prepuce, which prevents the glans penis from being uncovered. When it cannot be overcome by leeches, poultices or the hot bath, the prepuce must be divided by a bistoury, passed along a grooved director, previously introduced. When the prepuce is retracted and cannot be returned, but forms a sort of a ligature behind the glans, it is called paraphimosis. Cold lotions and leeches generally reduce the inflammation and relieve the constriction, but if they do not, the prepuce must be divided as in phimosis. This, of course, should be done by a medical man.

PHYSIC, *fiz'-ik* [Lat. *physica*], a term originally signifying natural philosophy, but in modern language restricted to that branch of medicine which forms the province of the physician, as opposed to that of surgeon. Among the lower orders in some places, the term physic is applied solely to purgative medicines.

PHYSICAL DEVELOPMENT. (See MARRIAGE, EXERCISE, GYMNASICS, TRAINING, ETC.)

PHYSICAL EXCITANTS. (See EXCITANTS.)

PHYSICIAN, *fe-zish'-an*, one who is empowered to practice physic by the laws of the land, or who is furnished with a diploma of doctor of medicine. (See SURGEON, MEDICINE, MEDICAL ADVICE, ETC.)

PHYSIC, INDIAN. (See GILLENIA TRIFOLIATA.)

PHYSIOGNOMY, *fiz-e-og'-no-me* [Gr. *physis*, and *ginosko*, to judge of], the study of general character, or of diseased states, from the features and cast of the countenance.

Efforts have been made by Lavater and others to raise this study to the rank of a science, but without success; undoubtedly the countenance will, to a certain extent, indicate character, as the general shape of the head will afford some confirmation of the theory of phrenology; but there are so many modifying influences, that it is never safe to predicate by any of these outward and visible signs what the mental or moral man may be. Of his state of health we may commonly judge pretty

well by the condition and expression of the countenance. (See COUNTE-NANCE, PHRENOLOGY.)

PHYSIOLOGY, *fiz-e-ol'-o-je* [Gr. *phusis*, nature, and *logos*, dis-course]; called also the institutes of medicine: is literally the doctrine or science of nature, comprehending a knowledge of all the physical and natural sciences; and this was the meaning which it originally bore. But as these, in course of time, came to be more particularly studied, they received distinct names, as natural philosophy, chemistry, astronomy, zoology, geology, etc. To the science which treats of the functions of living beings the term physiology is still applied, though its meaning is becoming more and more restricted as its various branches become better defined. By physiology, as at present used, is generally understood a knowledge of vital actions in a state of health, as distinguished from pathology, which is a knowledge of the same functions when diseased. It is generally considered to embrace a description of the various vital functions of the parts composing the human body, as well as the more intimate structure of the parts themselves; the relations of these parts to each other being referred to descriptive anatomy, and their chemical composition to animal chemistry. The modern science of *histology* deals with the elementary textures of the human body and their several functions, and is the recognized basis of physiological knowledge. The ultimate or elementary tissues are arranged as (1) molecule-tissues, (2) cell-tissues, (3) fibre-tissues, and (4) tube-tissues. Molecules are minute bodies, presenting to the microscope the appearance of minute dots or points. All fluids out of which the higher tissues are formed are rich in molecules. When we examine living structures under high magnifying powers, numerous tissues, but especially the fluids, are seen to contain multitudes of minute vesicles, or shut sacs, termed cells, which vary greatly in shape, size, and function, and are distinguished into permanent cells and cells of transition. Cells undergo a variety of changes; sometimes they gradually dissolve and perish, or the cell-wall bursts and liberates its fluid contents; and they unite in various ways to form complex tissues. A fibre is a solid elongated body like a thread, varying in thickness from $\frac{1}{16000}$ to $\frac{1}{14000}$ of an inch. The functions of the fibrous tissues are manifold; the most important, however, is that of contractility. The tubular tissues are distinguished from fibres by being composed of distinct walls, with contents, as in the nerve-tubes, and the blood-tubes or capillaries. These are the four great elementary tissues of living beings, on which depend the vital endowments of growth, contractility, and sensibility. Organized beings present us with only twenty of the sixty-two elementary substances known in chemistry; and of these the principal are oxygen, hydrogen, carbon,

and nitrogen, the others being found only in small quantities and in particular tissues. The chemical principles that are to be found more or less associated together in every texture and fluid of living beings, some prevailing in one, others in another, are (1) the albuminous, (2) the fatty, (3) the pigmentary, (4) the mineral principles. The albuminous principles consist of albumen, fibrine, and caseine. Fatty matter consists of carbon, hydrogen, and oxygen, in various proportions. The pigmentary principles give color to the various textures, and are evidently allied to oily constituents of living beings. Of mineral principles, the most important are carbonate and phosphate of lime. The various functions of the more complex organs of the human body are distinguished as those of *nutrition*, *innervation*, and *reproduction*. The function of nutrition consists of five stages—(1) the introduction into the stomach and intestinal canal of appropriate aliment; (2) the formation therefrom of a nutritive principle, the blood; (3) the transformation of the nutritive qualities of the blood into tissues; (4) the re-absorption of the transformed tissues into the blood; (5) the excretion of the various effete matters from the body. The subject of appropriate alimentary matters is treated under the heads *Food* and *Drinks*. The digestive processes—including mastication, or the chewing of the food; insalivation, the mixing it with saliva; deglutition, or the swallowing of it; chymification, or the action of the stomach; chylification, or the action of the intestines; and the absorption of the chyle—are treated of under the head of *Digestion*. The chyle in the intestines is taken up by the lacteals, and by them conveyed to the mesenteric glands, where it is supposed to undergo some change. From thence it makes its way to the right side of the aorta, in the lumbar region, where it is finally discharged in an elongated pouch, called the receptaculum chyli. From this pouch the thoracic duct conveys the chyle upwards to the left side of the neck, where it is poured into the left subclavian vein, at its junction with the internal jugular; and, being thus mixed with venous blood, is carried to the lungs, and there converted into arterial blood. The circulation is carried on by means of the heart, arteries, veins, and capillaries. The blood is propelled by the heart through the arteries to all parts of the body; and from the extremities of the arteries it is taken by the capillaries to the extremities of the veins, by means of which it is again conveyed to the heart. (See *CIRCULATION*.) The impure blood returned by the veins to the heart is by it propelled into the lungs, where it is purified by being exposed to the action of the air, and again conveyed to the heart for circulation through the body.

The lungs are so constructed as to expose a large surface, covered with capillary blood-vessels, to the action of the atmosphere. (See

RESPIRATION.) We thus see how nutritive matter is converted into blood, and how the blood circulates through all parts of the body. It is from the blood that all the different tissues derive their nourishment, each possessing a vital property of attraction and selection, whereby the necessary materials are drawn through the delicate membranous walls of the capillaries and converted into tissues. Hence a sufficient supply of nutritious blood is necessary to health, depending, as it does, upon the various processes of digestion, circulation, respiration, etc.; and also a healthy state of the parts to be nourished, so as to be able to attract and select the proper materials. A healthy state of the nervous system is also necessary, for on this, too, the various functions of the body depend. While the blood is constantly supplying matter to build up the various tissues, it is also, at the same time, receiving from these tissues the matter which has fulfilled its appointed functions. The new material takes exactly the place of the old, so that the general configuration of the body is preserved. The blood is thus a wonderfully complex fluid, made up partly of organic materials derived from the alimentary canal, and partly of organic materials derived from the tissues. (See BLOOD.) The latter are carried to various excretory organs, where they are separated and discharged; as by the intestines, kidneys, skin, lungs, and liver. The function of innervation is dependent on the brain, spinal cord and nerves. (See BRAIN, NERVOUS SYSTEM.) The third and last of these functions is that of reproduction, a subject of much interest, but comparatively little understood. It is said that the human foetus passes through various stages of growth, resembling in turn the different inferior beings of the animal scale; at first a zoophyte, then a mollusk, then a worm, a fish, a reptile; and so on. Some, however, regard this theory as being more fanciful than real, and founded merely upon loose analogies. (See BLOOD, DIGESTION, FOOD, RESPIRATION, CIRCULATION, REPRODUCTION, MEDICINE.)

PHYSOSTIGMA, *fi'-sos-tig'-ma* [Gr. *phusa*, a bladder, and *stigma*, a stigma], a genus of the Nat. order *Leguminosæ*. The species *P. venenosum* produces the Calabar ordeal-bean, so called from being used as a poisonous ordeal, to determine the guilt or innocence of accused persons. It possesses in a remarkable degree the power of contracting the pupil of the eye, and thus its effects are the contrary of those produced by belladonna. The extract is given in doses of $\frac{1}{16}$ to $\frac{1}{4}$ of a grain, but it is chiefly employed externally.

PHYTOLACCA DECANDRA, *fi'-to-lak'-ka de-kan'-dra*, or poke, a perennial plant belonging to the Nat. order *Phytolaccaceæ*, and found growing in all parts of the United States, as well as in the south of Europe and north of Africa. It is known by the common names of cocum,

garget, skoke-root and pigeon berry. The leaves, berries and root are used in medicine. It is a slow emetic and purgative, and is slightly narcotic. It is used in chronic rheumatism and syphilis and is an alterative in scrofula and scrofulous diseases. It contains a peculiar resin known as *phytolaccin*. Dose: of the fluid extract, 10 to 30 drops; the solid extract, 1 to 4 grains; the syrup, 1 to 2 teaspoonfuls three or four times a day.

PIA MATER, *pi'-a ma'-tur* [Lat., pious mother], is the name given to the innermost of the three investing membranes of the brain. (See BRAIN.)

PICA, *pi'-ka* [Lat. the magpie], is a depraved appetite with a strong desire for unnatural food. It is very common as a symptom of disease in pregnancy, chlorosis, etc.

PICKLES, *pik'-klz*, vegetable substances preserved in vinegar. Even when well prepared they are not very digestible, but the generality of those purchased are deleterious on another account—the more or less amount of copper which they contain—this poisonous addition being made to impart the fresh green color so generally desired by the purchasers and consumers of these articles. The slightest impregnation with this poison cannot be too strongly condemned, but it is probably used at times, in ignorance, for even some cookery-books openly advise its employment to green pickles. Fortunately, the detection of this adulteration, even in small proportion, is easy. If a perfectly clear and bright piece of iron—wire will do—be immersed for a few hours in the vinegar of the pickle, if copper is present the metal will be deposited in a perceptible, though thin crust upon the iron. (See VINEGAR.)

PICRATE OF AMMONIUM. (See CARBAZOTIC ACID.)

PICRIC ACID. (See CARBAZOTIC ACID.)

PIES AND TARTS. (See PASTRY.)

PIGEON BERRY. (See PHYTOLACCA DECANDRA.)

PIGMENT, *pig'-ment* [Lat. *pigmentum*], is a name given to the mucous substance which covers the surface of the iris, and gives it its beautiful variety of colors; also the black or brownish mucus which covers the anterior surface of the choroid membrane contiguous to the retina and the interior surface of the ciliary processes. (See EYE.)

PILES, OR HEMORRHOIDS, *pilze* [Lat. *pila*, a ball], are tumors which form at the verge of the anus, or fundament, and may be situated either within or without the bowel; they are either what are called “blind,” or they are bleeding piles. *Piles are often constituted* by an enlargement or varicose condition of the veins situated about this part, this enlargement being caused by whatever tends to obstruct the return of the blood through the veins of the abdomen generally; thus, affections

of the liver, constipation, with overloaded bowels, pregnancy, etc., are all frequent causes of this form of piles, in which the swellings are generally smooth, and of the color of the surrounding skin. Generally, the tumors vary in size, according to the operation of the acting obstruction; if they have occurred in consequence of pregnancy, they diminish or disappear after childbirth; if loaded bowels have been the cause, a dose of suitable aperient medicine relieves the effect. Sometimes the enlarged veins become filled with a fibrinous deposit from the blood, and then the tumors are permanent. Another form of pile is more of the character of a morbid growth, in it the tumors are more generally internal, and are red, florid, and uneven on the surface, and often very painful. From the causes of piles already stated, it may be imagined that the sedentary, those who are most liable to suffer from constipation and liver disorder, are also most likely to be the subjects of piles; the same may be expected to be the case with women who have borne large families. If the causes which first produced the disease do not continue in active operation, or are guarded against, the hemorrhoidal tumors may continue long quiescent, and give little trouble; but if from any cause, whether neglect of the bowels, cold, the abuse of purgative medicine, etc., they become inflamed, much suffering is induced; the state is then called a "fit of the piles," which lays the individual up from active exertion. In other cases, instead of inflammation, bleeding may occur, and every time the bowels are relieved a considerable amount of blood may be lost by stool.

The preventive treatment of piles is of the first importance, and the causes of the disease pointed out, will at once suggest the remedies, which are chiefly, a sufficient amount of exercise, and proper regulation of the bowels, with avoidance of food of too heating and stimulating a nature. If the liver is apt to get too loaded, it must be regulated (see BILIARY DISORDERS), but in doing this, and also in regulating the bowels, it is of some importance what aperient medicines are employed; aloes, from their power of acting upon the rectum or lower bowel, are too often said, when taken too constantly, to produce piles, but their effects in this way have perhaps been somewhat overrated. Certainly, if taken habitually in quantity to irritate, they will both cause piles and aggravate them when existing; but, on the other hand, the effect of aloes, in thoroughly unloading the lower bowels, and in stimulating the liver, renders the medicine a very efficient remover of the causes of piles. The moderate use of aloes, therefore, when an aperient is often required, need not be entirely eschewed by those who suffer from piles, unless they find by experience that the affection is aggravated by the use of the drug. The other aperients most useful in piles are, when active effect is

required, castor-oil, or senna infusion; when a milder action is required, rhubarb and magnesia, in the form of Gregory's powder, the electuary of senna, or the saline medicines, such as Epsom salts in small doses, largely diluted, will be found useful. Sulphur, combined either with an equal part of cream of tartar, or of calcined magnesia, forms one of the best mild aperients in piles; of either mixture 1 teaspoonful may be taken for a dose, the first in treacle, the second in milk. It must be remembered, that except for unavoidable purposes, purging is to be avoided in those subject to piles, and that mild easy action of the bowels is to be encouraged; above all, such a state of bowels as permits the fecal mass to become so hard as that it irritates or scratches the piles in passing, must be avoided. This is apt to occur if the bowels have been constipated for a day or two, in which case it is advisable to use a small injection of warm water, so as to soften the contents of the bowel previous to evacuation; indeed, in those subject to piles, injections if care be taken not to irritate with the pipe of the instrument—form a most valuable adjunct to other means of prevention or of treatment.

When from any cause, inflammation, or a fit of the piles, is induced, the first essential is rest in the horizontal posture, so as to give every facility for the return of the blood from the affected parts; the diet should be reduced, made as cooling as possible, and the bowels kept lax by some of the means pointed out above. If the inflammation is severe, four or five leeches may be required; if not, warm fomentations and steaming will often give relief; at other times, the cooling lead lotion, or an ointment made with $\frac{1}{2}$ a dram of goulard extract, rubbed up in an ounce of lard, will be most serviceable. An excellent ointment, as an external application to piles, is made as follows:

Take of Galls.....	Eighty grains.
Opium in powder.....	Thirty-two grains.
Simple ointment, or fresh lard.....	One ounce.— <i>Mix.</i>

This is equivalent to the well-known gall and opium ointment.

Bleeding piles.—When piles show a tendency to bleed, and indeed in any case, when they are decidedly developed, a medical man should be consulted; not solely on account of the pain and inconvenience resulting from the presence of the tumors themselves, but because of the constitutional tendencies they exhibit. The treatment of bleeding piles is often a delicate matter. If the loss of blood is so great as to manifestly weaken a patient, there can be but little doubt that it must be stopped, and may be with safety; but at other times it is a safety-valve which cannot without hazard be closed, as long as the cause which first opened it continues. That is to say, instead of stopping the loss of blood from the piles by direct applications, it must be done by constitutional

remedies, adapted to diminish the plethora, either local or general, which originated the disorder; in this case, the preventive treatment of piles generally, as already stated, must be resorted to. Apoplexy and other diseases have followed upon the unwary closure of bleeding piles. After constitutional treatment, however, piles may continue to bleed merely from local causes; in this case, the drain is injurious, and must be stopped.

Many remedies for the stoppage of bleeding piles are used. Common pitch, rolled into 3 grain pills, and 2 of these, taken twice a day, is sometimes very efficient. Cream of tartar alone, in teaspoonful doses, taken stirred in water, answers well in some cases. Some recommend, especially when protrusion of the bowel also takes place, that after each evacuation, a small injection, composed of 1 grain of sulphate of iron, or green vitriol, should be thrown into the bowel, *and retained*. When inward piles are protruded at the evacuation of the bowels, it is very important that they should be returned to their proper site as soon as possible, otherwise they are very liable to inflammation and strangulation. A piece of linen, well oiled, is the best medium for exerting the pressure requisite for this operation. When piles reach a certain point they may require a surgical operation for their removal.

PILLS, *pilz* [Lat. *pilulæ*], a very convenient form of administering medicines, particularly such as are nauseous in their flavor, or are very active in their properties. The ingredients are first finely pulverized, and then well mixed together with some tenacious liquid to a proper consistency, after which the mass is put into a machine, by which it is divided and rolled into pills. For domestic purposes, in the absence of a machine, this may, of course, be done with the hands. Small druggists' scales are indispensable for weighing the ingredients. The abbreviation U. S. P. occurring in this article, signifies United States Pharmacopœia.

Pills are better kept in a well-corked bottle than in a box. The following is a list of the most useful pills for domestic use:

ALOES AND ASSAFÆTIDA PILL (U. S. P.)

Take of Aloes.....	One part.
Assafætida.....	One part.
Castile soap.....	One part.— <i>Mix</i> .

Form into pills of four grains each.

It is cathartic with stimulant and carminative properties. Applicable to costiveness attended with flatulence and debility of the digestive organs. Dose, 2 to 5 pills. (See the article ASSAFÆTIDA.)

ALOETIC PILL (U. S. P.)

Take of Socotrine aloes.....One part.
 Castile soap.....One part.—*Mix.*
 Form into pills of four grains each.

It is cathartic and tonic. Recommended in dyspepsia, suppression of the menses, habitual constipation, worms, etc.; ordinarily where cathartics are needed. Where piles exist, aloes is unsuitable, unless modified by combination, as for instance, in this pill the soap diminishes the liability of the aloes to irritate the rectum. Dose: 1 to 3 pills. (See the articles ALOES, SOAP.)

ANTHEMIS, OR CHAMOMILE PILL.

Take of Extract of anthemis.
 Form into pills of two grains each.

It is a mild tonic. In small doses is agreeable to the stomach. Dose: 1 to 6 pills. (See the article ANTHEMIS.)

ANTI-BILIOUS PILL.

Take of Extract of colocynth.....Ten grains.
 Podophyllin.....One grain.—*Mix.*
 Form into pills of two and three-fourth grains each.

It is a drastic hydragogue cathartic. By this combination we have the purgative energy of colocynth without its violence. Recommended in dropsical affections, and liver derangements, in cases where a brisk cathartic is needed. Dose: 1 to 4 pills. (See the articles COLOCYNTH, PODOPHYLLUM PELTATUM.)

ANTI-DYSPEPTIC PILL.

Take of Strychnine.....One-fortieth of a grain.
 Extract of belladonna.....One-tenth of a grain.
 Pulverized ipecac.....One-tenth of a grain.
 Extract of colocynth compound.....Two grains.—*Mix.*
 Form into one pill of two and a half grains.

(This pill should be prepared by a competent druggist.) Dose: 1 pill. (See the articles STRYCHNINE, OR STRYCHNIA; ATROPA BELLADONNA, CEPHAELIS, COLOCYNTH.)

APERIENT PILL.

Take of Extract of nux vomica.....One-third of a grain.
 Extract of hyoscyamus.....One-half grain.
 Extract of colocynth compound.....Two grains.—*Mix.*
 Form into one pill of two and five-sixths grains.

It promotes excretion. Employed in confirmed torpor of the bowels. (This pill should be prepared by a competent druggist.) Dose: 1 to 2 pills. (See the articles STRYCHNOS NUX VOMICA, HYOSCYAMUS NIGER, COLOCYNTH.)

ASSAFÆTIDA PILL (U. S. P.)

Take of Assafœtida gum.

Form into pills of four grains each.

It is a powerful antispasmodic, moderate stimulant, efficient expectorant and feeble laxative. The disagreeable taste and odor may be concealed by sugar coating. Dose: 2 to 4 pills. (See the article ASSAFÆTIDA.)

ASSAFÆTIDA AND IRON (U. S. P.)

Take of Assafœtida.....Two grains.

Sulphate of iron.....One grain.—*Mix.*

Form into one pill of three grains.

It has especial reference to spasmodic affections dependent on general debility of the system and disorders attended with immoderate discharges. Dose: 2 to 4 pills. (See the articles ASSAFÆTIDA, IRON.)

BLUE PILL (U. S. P.)

Take of Blue mass.

Form into pills of three grains each.

Alterative and purgative, and promotes the flow of the saliva. Less irritating than the other mercurials. It is employed in constipation, biliary derangements, syphilitic diseases, and whenever the influence of mercury is desirable. With a view to the alterative effect upon the digestive organs one pill may be given every night, or every other night, at bed-time, and followed in the morning, if the bowels should not be opened, by a small dose of laxative medicine. From 5 to 15 grains of the mass are occasionally given as a cathartic in cases requiring a peculiar impression upon the liver; but when used for this purpose, it should always either be combined with, or speedily followed by, a more certain purgative. Dose: 2 to 3 pills. (See the article BLUE PILL.)

BLUE PILL COMPOUND.

Take of Blue mass.....One grain,

Opium in powderOne-half grain.

Ipecac in powder.....One-quarter grain.—*Mix.*

Form into one pill of one and three-quarter grains.

This combination so modifies the action of blue pill, as to render it a more satisfactory laxative and alterative. It is more energetic, while its after effects are less objectionable. Dose: 1 to 3 pills. (See the articles BLUE PILL, OPIUM, CEPHAELIS.)

CALOMEL COMPOUND PILL.

(See the article PLUMMER'S PILL.)

COLOCYNTH COMPOUND, EXTRACT, PILL.

Take of Extract of colocynth compound.

Form into pills of three grains each.

Produces prompt and free evacuations and is beneficial in liver derangements. Dose: 2 to 6 pills. (See the article COLOCYNTH.)

CONIUM, EXTRACT, PILL.

Take of Extract of conium.

Form into pills of one-fourth of a grain each.

Is narcotic and alterative. It is administered in a variety of complaints to alleviate pain. By some it is supposed to possess a curative influence over malignant tumors. Beneficial in chronic rheumatic affections; in all excitable conditions of the nervous and vascular system. Dose: 2 to 6 pills. (See the article CONIUM.)

COOK'S PILL.

Take of Aloes.....One grain.
Calomel.....One-half grain.
Rhubarb in powder.....One grain.
Soap.....One-half grain.—*Mix.*

Form into one pill of three grains.

Is laxative and alterative. A very popular pill on the plantations through the South. Dose: 1 to 3 pills. (See the articles ALOES, MERCURY, RHEUM PALMATUM, SOAP.)

CYPRIPEDIUM, EXTRACT, PILL.

Take of Extract of cypripedium.

Form into pills of two grains each.

Useful in hysteria, St. Vitus's dance, nervous headache, and all cases of nervous irritability. Dose: 2 to 6 pills. (See the article CYPRIPEDIUM PUBESCENS.)

DINNER PILL. (LADY WEBSTER'S.)

Take of Aloes.....Three parts.
Gum mastich.....One part.
Powdered rose leaves.....One part.—*Mix.*

Form into pills of three grains each.

A favorite pill in indigestion, dyspepsia, and constipation. Dose: 1 to 3 pills.

DOVER'S POWDER PILL.

Take of Opium in powder.....One part.
Ipecac in powder.....One part.
Sulphate of potash.....Eight parts.—*Mix.*

Form into pills of two and a half grains each.

This is an admirable anodyne diaphoretic, not surpassed perhaps by any other combination in the power of promoting perspiration. Dose: 1 to 6 pills. (See the article DOVER'S POWDER.)

GENTIAN, EXTRACT, PILL.

Take of Extract of gentian.

Form into pills of two grains each.

Is a tonic. Promotes the appetite, invigorates digestion, and strengthens the system. Dose: 2 to 6 pills. (See the article GENTIANA.)

JALAP PILL.

Take of Extract of jalap.

Form into pills of one grain each.

Jalap in small doses is aperient and laxative, in large doses an active but safe and convenient purgative. Dose: 1 to 6 pills. (See the article *IPOMŒA JALAPA*.)

KRAMERIA, OR RHATANY, EXTRACT, PILL.

Take of Extract of krameria.

Form into pills of two grains each.

One of the most active vegetable astringents. Used in diarrhœa, dysentery and passive hemorrhages. Dose: 1 to 5 pills. (See the article *KRAMERIA TRIANDRA*.)

LACTUCA, EXTRACT, PILL.

Take of Extract of lactuca.

Form into pills of two grains each.

It quiets nervous irritation, produces sleep and allays cough. Dose: 1 to 3 pills. (See the article *LACTUCA SATIVA*.)

LEPTANDRIN PILL.

Take of Leptandrin.

Form into pills of one grain each.

The effect of leptandrin is gently to excite the liver without producing the least irritation of the bowels. In torpidity of the liver it is thought to be superior to the blue pill. Dose: 1 to 2 pills. (See the article *LEPTANDRA VIRGINICA*.)

LUPULIN PILL.

Take of Lupulin.

Form into pills of three grains each.

Lupulin is regarded as possessing no inconsiderable power to control delirium tremens and watchfulness in connection with nervous irritation, anxiety and exhaustion. Dose: 2 to 3 pills. (See the article *HUMULUS LUPULUS*.)

PLUMMER'S PILL.

(See the article *PLUMMER'S PILL*.)

PODOPHYLLIN COMPOUND PILL.

Take of Podophyllin.....One-half grain.

Extract of hyoscyamus.....One-eighth grain.

Extract of nux vomica.....One-sixteenth grain.—*Mix.*

Form into one pill of eleventh-sixteenths grain.

A reliable purgative, acting on the bowels promptly, and unattended by the disagreeable results which generally follow the administration of cathartic medicines. Too much can not be said in favor of this

combination. Dose: 1 to 2 pills. (See the articles *PODOPHYLLUM PELTATUM*, *HYOSCYAMUS NIGER*, *STRYCHNOS NUX VOMICA*.)

PODOPHYLLIN PILL.

Take of Podophyllin.....One-half grain.
Confection of roses.....One-half grain.—*Mix*.
Form into one pill of one grain.

A popular and active purgative. Remarkably small doses will affect some persons, producing prompt and abundant evacuations. To ensure its action on an acid stomach, alkalies should previously be administered to neutralize the acid. Dose: 1 to 2 pills. (See *PODOPHYLLUM PELTATUM*.)

PODOPHYLLUM, OR MANDRAKE, EXTRACT, PILL.

Take of Extract of podophyllum peltatum.
Form into pills of one grain each.

Is hydragogue and deobstruent, and in small doses alterative. Valuable in many chronic complaints. Will often break up bilious and typhoid fever administered in sufficient quantities in the early stages of these complaints. Dose: 3 to 8 pills. (See the article *PODOPHYLLUM PELTATUM*.)

QUASSIA, EXTRACT, PILL.

Take of Extract of quassia.
Form into pills of one grain each.

Is stomachic, tonic and febrifuge. It possesses advantages over most other vegetable tonics, in that it does not produce constipation, increase of animal or arterial excitement. Dose: 3 to 5 pills. (See the article *SIMARUBA EXCELSA*.)

QUININE, SULPHATE, PILL.

Take of Sulphate of quinine.....One grain.
Extract of gentian.....One grain.—*Mix*.
Form into one pill of two grains.

It produces upon the system, so far as can be judged from observation, the same effects as Peruvian bark, without being so apt to nauseate and oppress the stomach. Dose: 1 to 6 pills. (See the article *QUININE*.)

QUININE, SULPHATE; IRON AND STRYCHNINE, PILL.

Take of Sulphate of quinine.....One grain.
Carbonate of iron.....Two grains.
Sulphate of strychnine.....One-sixtieth grain.—*Mix*.
Form into one pill of three and one-sixtieth grains.

(This pill should be prepared by a competent druggist.) Is a blood restorative, tonic and nervine stimulant. May be employed as a tonic in dyspepsia, in some types of paralysis, Saint Vitus's dance, and suppression of the menses. Dose: 1 to 2 pills. (See the articles *QUININE*, *IRON*, *STRYCHNINE*.)

RHUBARB, EXTRACT, COMPOUND PILL (U. S. P.)

Take of Extract of rhubarb.....	Two grains.
Aloes.....	One and a half grain.
Myrrh.....	One grain.
Oil peppermint.....	Two drops.— <i>Mix.</i>
Form into one pill of four and one-half grains.	

A warm tonic, laxative. Useful in costiveness with debility of the stomach. Dose: 2 to 5 pills. (See the articles RHEUM PALMATUM, ALOES, BALSAMODENDRON, MENTHA PIPERITÆ.)

SANTONINE PILL.

Take of Santonine.....	One and a half grains.
Extract of jalap.....	Two grains.— <i>Mix.</i>
Form into one pill of three and one-half grains.	

The exclusive anthelmintic principle of *A. Santonica*. Has been widely used in Europe and America for worms. Dose: 2 to 4 pills. (See the article SANTONINE.)

SARSAPARILLA, EXTRACT, PILL.

Take of Extract of sarsaparilla.	
Form into pills of three grains each.	

This is one of the most highly useful alteratives in the materia medica. Dose: 2 to 5 pills. (See the article SMILAX.)

SENNA, EXTRACT, PILL.

Take of Extract of senna.	
Form into pills of two grains each.	

A reliable and convenient cathartic. Useful in all conditions when the object is to produce a slight impression on the bowels. Dose: 1 to 2 pills. (See the article CASSIA.)

TARAXACUM, OR DANDELION, EXTRACT, PILL.

Take of Extract of taraxacum, or dandelion.	
Form into pills of three grains each.	

An excellent remedy to remove torpor and engorgement of the liver. One of the most valuable properties of dandelion consists in its local action on the liver; a torpid state of this organ produces those symptoms which are known as bilious. Dose: 3 to 6 pills. (See the article TARAXACUM DENS-LEONIS.)

VALERIAN, EXTRACT, PILL.

Take of Extract of valerian.	
Form into pills of two grains each.	

It is stimulant tonic and antispasmodic. Dr. Waring says: "It ranks in efficacy next to assafoetida, and is said to be a useful adjunct to cinchona in intermittents." This agent has proved eminently useful in hysterical headaches, hysteria, mania, melancholy and in some types of delirium tremens. Dose: 1 to 5 pills. (See the article VALERIANA OFFICINALIS.)

PILOCARPUS PENNATIFOLIUS, *pi-lo-kar'-pus pen-na-te-fó'-le-us*, or jaborandi, a new Brazilian drug said to possess extraordinary diaphoretic and sialagogue properties, causing perspiration when other means fail. Used in the commencement of fevers, pneumonia, chronic Bright's disease, diabetes mellitus, and acute rheumatism and bronchitis. Dose, of the fluid extract of the leaves, 20 to 60 drops.

PIMPLES. (See ACNE, IMPETIGO, ECZEMA, HERPES; SKIN, DISEASES OF THE; ETC.)

PINE-APPLE, *pine'-ap-pl*, the well-known fruit, is rather hazardous for those of weak digestive powers.

PINK-ROOT. (See *SPIGELIA MARILANDICA*.)

PINS AND NEEDLES, *pinz*, occasionally get fixed in the throat from the careless and reprehensible practice of holding them in the mouth. When swallowed, they generally work their way to, and show themselves at some distant part of the body. Pins which cannot so well work their way out, will, in process of time, be dissolved by the acids of the stomach; a little vinegar taken occasionally will assist this process. If they produce pain and a pricking sensation in the bowels, castor-oil should be administered. (See FOREIGN BODIES IN THE GULLET, FOREIGN BODIES IN THE AIR-PASSAGES.)

PINT. (See WEIGHTS AND MEASURES.)

PINUS CANADENSIS, OR HEMLOCK, *pi'-nus kan-a-den-sis*. This is a common forest tree, found in great abundance in the British Provinces in North America, and in most of the New England States, and also in the mountainous regions of the Middle States. The bark contains a large amount of tannin, and is extensively used in the manufacture of leather. The whole plant contains an oleo-resinous substance which is manifest by its fragrant exhalations. The extract, furnished from the bark, is a valuable remedy in the treatment of chronic diarrhœa, in the last stages of dysentery, and cholera infantum. The valuable astringent properties have suggested its employment in profuse menstruation, etc., as well as in many other cases, in which matico, tannin and rhatany have been found useful. Dose: of the fluid extract, 1 to 2 teaspoonfuls; the infusion of the bark, 1 to 2 fluid ounces. (See INFUSION.)

Hemlock gum is an oleo-resin which exudes from this tree. It is a mild stimulant, and in contact with the skin, reddens it, and is frequently used instead of Burgundy pitch for making plasters. The essential oil of hemlock is useful as an external application in croup, rheumatism, and other diseases requiring a stimulating local application. The essence, in doses of 5 or 10 drops, in sweetened water, every half hour until relief is obtained, has been found to allay vomiting in cholera morbus.

PIPER CUBEBA. (See CUBEBA.)

PIPER NIGRUM, *pi'-pur ni'-grum*, or black pepper, a plant growing in various parts of the East Indies, and belonging to the Nat. order *Piperaceæ*. Pepper, as a condiment, is wholesome when used in moderation. (See CONDIMENTS.) Medicinally, black pepper is a warm carminative stimulant. It appears, in common with cubebs, to exercise a specific influence on the mucous membranes of the rectum and genito-urinary organs. In large doses it produces inflammation of the stomach and acts as an irritant poison. Its chief medicinal application is to excite the languid stomach and correct flatulence. In intermittent fever, when the stomach is not duly susceptible to the action of quinine, as sometimes in drunkards, pepper may be found a useful adjuvant to the more powerful febrifuge. It should not be used when there is inflammation of the stomach or intestines. Dose: of the fluid extract, 10 to 40 drops; of the tincture, $\frac{1}{2}$ to 2 teaspoonfuls.

PIPSISSEWA. (See CHIMAPHILA UMBELLATA.)

PITCH. (See TAR AND PITCH.)

PITCH, BURGUNDY, *pitsh* [Lat. *pix*], is a resinous exudation from the spruce fir (*Abies excelsa*), melted and strained. It is imported from Switzerland. Its principal use in medicine is in the preparation of plasters, used as rubefacients and strengthening applications. (See TAR AND PITCH, PLASTERS.)

PITCHER PLANT. (See SARRACENIA PURPUREA.)

PITCH PLASTER, OR BURGUNDY PITCH PLASTER, is made by melting together Burgundy pitch, 26 ounces; common frankincense, 13 ounces; resin, $4\frac{1}{2}$ ounces; yellow wax, $4\frac{1}{2}$ ounces; then add expressed oil of nutmeg, 1 ounce; olive oil, 2 ounces; water, 2 ounces; stir and evaporate to proper consistence. It is warm and rubefacient, applied to the chest in chronic pulmonary complaints, to the loins in lumbago, etc.

PLACENTA, *pla-sen'-ta*, the after-birth. (See AFTER-BIRTH, CHILD-BED.)

PLAGUE, *plaig* [Gr. *plege*, a stroke], a contagious fever, generally of a very severe kind, rapid in its progress, and accompanied by buboes, carbuncles, and petechiæ. It spreads rapidly by contact, and is usually fatal to two-thirds of those whom it attacks. Surgeon-General Woodworth in a letter to the Congressional Committee on Epidemic Diseases—written while the plague was raging in Russia in 1879—gives the following account of its progress in the past:

“The people of this generation have considered the plague a scourge belonging only to the past, and a few words in reference to its former ravages may be of interest. The great epidemics of this disease have

followed as a sequence to wars in unsanitary countries or to great religious pilgrimages. The plague prevailed in earliest historic times. The first epidemic of which we have any definite record occurred nearly 3,000 years ago, in the time of David. Next is the great plague which commenced 768 years before Christ, which is said to have spread over the whole world. The epidemic which commenced in the time of Justinian, 541 or 542 years before Christ, is said to have 'almost consumed mankind.' It commenced in Egypt and spread to all parts of the then known world, "making destruction its only business, and sparing neither island, cave, nor top of mountain where mankind inhabited." When the pestilence was at its height in Constantinople, as many as 10,000 perished in a day, so that the dead lay without burying. Procopius compares the number who perished to the sands of the sea. Another general epidemic of the plague prevailed in the year 430 B. C., and was especially severe in Athens. During the Christian era the plague has frequently visited Europe with great fatality, unequalled by any other epidemic disease. It is estimated that there were forty-five epidemics of the plague during the seventeenth century. Fourteen of these are referred to Holland and twelve to England. The one which occurred in London in the year 1665 was as terrible as the great fire of 1666, which put a stop to its ravages. The lowest estimate of deaths in London alone in 1665 is given as 68,500.

"In the present century the plague has occurred chiefly in the countries of the Lower Danube and the Black Sea. The last epidemic in Western Europe occurred at Marseilles and vicinity in 1720 and 1721, causing the death of 200,000 people. The same year it prevailed in the Island of Majorka. Europe has been free from the plague since 1841, and it has not occurred in Asiatic Turkey since 1843, nor in Egypt since 1844. In 1858 and 1859 the plague prevailed among the Arabs in the vicinity of Berrazi, a seaport of North Africa. In 1857 an epidemic occurred in Mesopotamia, and one in Persian Kurdistan in 1871."

The plague which prevailed to an alarming extent in portions of Russia in 1879, was by great vigilance—exercised by Russia and adjoining countries—confined to comparatively small limits, and soon disappeared.

Symptoms.—The first symptoms are headache in the fore and back parts of the head, sometimes accompanied by violent and short tremors, alternating with heat. The eyes become red, and assume a ferocious aspect; the headache increases, and the pain extends to the spine, the joints, and the limbs. Then follow vertigo and delirium, at first mild, but afterwards fierce. The tongue is dry and yellowish, but without thirst. There is nausea, with ineffectual attempts, in most cases, to

vomit, or if anything is brought up, it is green bile. The respiration is laborious, with general uneasiness. There is nothing particular in the alvine excretions, although they are sometimes liquid. The urine is often turbid, with an oily aspect. The smell of the patient is occasionally nauseous; but if the disease has lasted a few days, the perspiration has often a sweetish, disagreeable odor. The disease varies in duration from three to seven days; but the patient often dies within a few hours of the attack.

Treatment.—The medical treatment of the plague has hitherto been of an empirical character; no treatment attempted having been proved of real use. In the French army at Jaffa, bark, tamarinds, coffee, and camphor were employed, as well as sudorifics, emetics, and blisters, but without success. It has been asserted that bleeding and laxatives are of great efficacy; but it is known that in many cases they have proved utterly ineffectual. Sweating, the use of cold water and of oil, have, in turns, been loudly advocated as remedies for this disease, but apparently on the very vaguest grounds. The sufferer should, if possible, be removed as soon as attacked, from the source of the distemper; he should be freely exposed to fresh air; secretions should be duly regulated, and his strength, so far as may be, carefully supported. Friction, with olive-oil, has been strongly recommended; but later experience has not confirmed the first favorable reports. Like other contagious exanthemata it probably runs a prescribed course, which cannot be materially shortened, and it has generally been deemed wisest to limit exertion to the local treatment of buboes and carbuncles, and give the sufferer the best hygienic surroundings attainable. There can be little doubt that Europeans, and Americans particularly, owe much of their comparative exemption from the pestilence in infected cities of the Levant to their personal cleanliness, regular bathing in cold water, superior ventilation and moderate habits of living.

PLANTAGO MAJOR, *plan-ta'-go ma'-jur*, or plantain, a perennial plant belonging to the Nat. order *Plantaginaceæ*. It grows in rich moist places both in Europe and America. It is alterative, diuretic, and antiseptic, and is useful in scrofula, menorrhagia, diarrhœa, dysentery and piles. The juice, in ounce doses internally, and also applied to the wounds, is in some repute as an antidote to the bites of poisonous snakes. An ointment of the bruised leaves is useful in salt rheum, sores and old ulcers. Dose: of the fluid extract, $\frac{1}{2}$ to 1 fluid ounce; of the infusion, 2 to 4 fluid ounces. (See INFUSION.)

PLANTAIN. (See PLANTAGO MAJOR.)

PLANTS, ROOTS, BARKS, SEEDS; COLLECTION AND PRESERVATION OF, *plants*. Many of the vegetable substances

used in domestic practice are frequently inactive, from the fact that, either they are not gathered at the right time, or are not properly prepared and taken care of afterward. *Roots* are best gathered shortly after the decay of the leaves and flowers in the autumn; those of the biennials, or plants which only live two years, should always be gathered from the first year's growth. After being gathered they should be washed in two or three waters, and if large, cut into slices before being dried. The drying process should be conducted very gradually; the sun and dry breeze will do the work more efficiently than the furnace, only care must be taken that the damp roots are not piled too thickly. When nearly dry they may be laid away on a shelf, or in a paper bag, or in an old barrel, in a dry place of course, lest they should mould. Most roots will take from a month to six weeks to dry properly. *Barks* should be gathered in the spring, just after the sap has ascended. All moss and excrescences should be carefully removed before the bark is peeled off. *Leaves and herbs* should be carefully gathered just previously to maturity; all faded leaves, worm-eaten leaves, and dry stalks being rejected, as they are in most cases inert, or give rise to disagreeable symptoms when used. *Flowers* should be gathered before they commence to fade, and *seeds* when they are almost ripe. These may all be dried in the same manner as roots, but do not require so much time. (See POWDERS, ETC.)

PLASTER OF PARIS, *plas'-tur*. Sulphate of lime, or gypsum, is sometimes used in the treatment of fractures. It is often used in the adulteration of confectionery. (See CALCIUM.)

PLASTERS, *plas'-turz* [Lat. *emplastrum*], are compounds of adhesive tenacious substances. Many are, principally, compounds of an oxide of lead and oil, others of wax and resin. Plasters should not adhere to the hand when cold; they should be easily spread when heated; and should remain tenacious and pliant after they are spread; but should not be so soft as to run when heated by the skin. All plasters become too consistent and brittle when long kept; but in this case, those which are unctuous may be re-melted by a gentle heat, and some oil added to them.

Plasters may be either simply adhesive, such as the common diachylon or the isinglass plaster; they may be protective, such as the lead; warm, like the galbanum, etc. The most useful plasters are:

Adhesive or diachylon plaster; *belladonna*, anodyne; *cantharides*, blistering; *galbanum*, warm and stimulant; *isinglass*, adhesive; *lead*, protective; *mercurial*, discutient; *opium*, anodyne; *roborans* or *iron*, supporting; *soap*, adhesive. (Refer to separate articles.)

Medical men are constantly in the habit of ordering combinations of these plasters as, for instance, opium and belladonna plaster, so useful

in heart affection, accompanied by pain or palpitation. (See PALPITATION OF THE HEART.)

The above plasters may be employed for the purposes indicated, and should always, if possible, be procured ready spread. As a general strengthening plaster, the roborans, or iron plaster, is perhaps the best, and undoubtedly gives much comfort and support in many cases, especially those in which there is much weakness of the back.

When spread plasters are warmed for application, the unsprea^d side should always be held to the heat. When plasters are to be removed from the skin, they should always be well warmed through by warm water.

It is a common popular error to suppose, that the plasters used in the treatment of wounds exert some healing influence; whereas, they are only used to keep the severed parts as close together as possible, in order that the natural healing power may be exerted. It is requisite to notice the error, for it might in some cases interfere with the use of substances, such as gums, etc., as plasters, which might be advantageously used as such.

It is a very common thing to see sores which might speedily have healed if left to nature, kept open for a long time, by applying common adhesive plaster to their surface, under the impression that it possessed some healing virtue. (See BLISTERS, DRESSING, WOUNDS, ADHESIVE PLASTER; DIACHYLON, OR LEAD PLASTER.)

PLEASURE, *plezh'-ur* [Fr. *plaisir*]. The cheerful excitement of the mind, by what is called pleasure, is rather a preservative of health than a remedy in real sickness, when the less stimulant but cheering tonic of hope is the better adapted mental remedy. Pleasurable relaxation there must be, both for mind and body, and especially for the young; and they act unwisely, who, instead of directing the mind to sources of, and leading it to find its happiness in innocent, cheerful, well directed relaxation and pleasure, would make this world one never-closing workshop, or have it a perpetual valley of tears. (See EXERCISE, HEALTH RESORTS, RECREATION, TRAVELLING, EXCITANTS.)

PLETHORA, OR FULNESS, *pleth'-o-ra* [Gr. *plethora*, fulness], is the term applied to that condition of system in which the blood is superabundant, both in quantity and quality over what the requirements of the body call for. It is a condition not uncommon among the well-fed and indolent, in whom the digestive organs continue in full vigor. Individuals of the sanguine temperament, whilst leading a life of mental activity and anxiety, have greater powers of activity than most others, but they, in many instances, border upon plethora, and if they become so placed that their former activity is either uncalled for or interfered

with, provided there is not much mental anxiety, they quickly become plethoric; the vessels are overloaded with rich blood, and instead of the former power of exertion, oppressive languor and inactivity succeed; in fact, the whole of the functions, and the brain and nervous system especially, are weighed down and clogged; there is mental sluggishness, heavy sleep and inaptitude for exertion. This last symptom is too often mistaken for weakness; the person laboring under the mistake resorts to additional food and stimulants, it need scarcely be added, only to increase the evil. An individual in this condition, it may be said, is ripe for inflammation; if cold be taken, it is very likely to light up inflammatory action somewhere, and once lighted up, the action is very liable to be of the severest kind.

Should febrile disease of any kind, as for instance small-pox, or erysipelas, or rheumatic fever, be excited in the constitution, the symptoms run high, and the case is very likely to become one of danger. For similar reasons, accidents are not well borne—at least their after-effects are often such as to put life in danger.

If a person suffering from plethora is threatened with an immediate attack, such as apoplexy, the condition cannot be too soon or too actively removed. Bleeding in some way, free purging, and low diet are the immediate remedies; but in the absence of any threatened attack, it is not advisable to invoke the aid of these powerful agents; the condition should be reduced gradually and steadily, by the formation of, and perseverance in, modes of living suited to counteract the tendency.

Persons who have a tendency to plethora must have exercise, they must use up their blood and muscle in active motion; but in doing this, especially at first, they must beware of overdoing it; it will not do for a plethoric man to commence a new system of living for health, with violent exertion, otherwise he may precipitate the very evil he dreads; some overloaded vessel may yield under the increased tension caused by the muscular exertion and excited circulation. Plethora, to be reduced, must be so, steadily, but gradually; active exercise, increased as the ability to take it increases, must be balanced with aliment proportioned to the amount taken, stimulants being rarely if ever permissible, or required, and animal food in very moderate proportion. Early hours, and curtailment of the time devoted to sleep, is desirable. In most cases, tepid bathing is preferable to either hot or cold, and either by it or by sponging, the skin must be kept active. The bowels require especial attention, and are better rather lax than otherwise; any slight tendency to plethoric oppression being counteracted by acting upon them by the compound colocynth, or compound colocynth and blue pill, or by small, largely diluted, doses of Epsom salts, or by Seidlitz powders. If

the kidneys are inactive, the infusion of broom, or of dandelion, carbonate of potash, or the nitrate of potash—saltpetre—may be taken, or the super-tartrate of potash—cream of tartar—used in the form of imperial, as a common drink. (See APOPLEXY, CORPULENCE, DEBILITY, ETC.)

PLEURA, *plu'-ra* [Gr.], the name given to the membrane which lines the internal surface of the thorax and covers its viscera. (See LUNGS, PLEURISY.)

PLEURISY, OR PLEURITIS, *plu'-re-se* [Gr. *pleuron*, the side]. This term is used to signify inflammation of the pleura, or serous membrane investing the lungs and lining the cavity of the chest. The membrane becomes dry and red at first, but soon begins to pour out a serous fluid, which ultimately fills the chest, just as we get the cavity of the body filled with fluid in the course of the liver disease.

Causes.—Pleurisy may be caused by local injury, and is frequently the result of injuries produced by the rough end of a fractured rib. This disease is frequently the immediate cause of death in women suffering from cancer of the breast. Sometimes it is due to exposure to cold and wet, and it frequently accompanies pulmonary consumption and certain morbid conditions of the blood, as in Bright's disease, scarlet fever, measles, small-pox, and typhus and typhoid fevers.

Symptoms.—This affection may be ushered in by chills, but they are neither so severe nor so constant as in the earliest state of the preceding disease; the skin becomes hot and dry, the tongue furred, the pulse quick and hard, and the patient complains of an acute lancinating pain like the stabbing of a sharp instrument on a level, or just beneath one of the breasts; this pain is increased by inspiration, cough, and sudden movements of the body. The breathing is quick and catching, the patient being afraid to expand his chest because of the increase of pain. There is a half-suppressed, dry, ineffectual cough, or it may be accompanied by the expectoration characteristic of bronchitis, or inflammation of the lungs. The invalid cannot lie on the affected side in the earlier stage because of the pain in the chest, but in the later periods of the disease he is forced to lie on the diseased side because it is full of fluid, and so if not placed below the other lung will embarrass its movements also. When there is much fluid in the chest the respiratory process becomes very difficult and much interfered with, and the patient grows pale and begins to flag.

Treatment.—When due to exposure to cold and wet the hot-air bath will sometimes cut short the attack; bleeding is not generally required, but five, six, or more leeches may be applied over the diseased spot, and when taken off the whole side should be enveloped in a warm linseed poultice; opium in doses of 1 grain every six hours, must be given

to ease the pain and keep the inflamed parts as much at rest as possible. Ten grains of Dover's powder at bed-time where the pain is not extremely violent, will be found to answer the purpose.

The skin must be freely acted upon by the use of the following mixture:

Take of Solution of the acetate of ammonia.....	Two drams.
Sweet spirits of nitre.....	One dram.
Compound tincture of lavender.....	One dram.
Camphor water.....	Six ounces.— <i>Mix.</i>

Give 2 tablespoonfuls every three or four hours.

The bowels must be regulated by the occasional use of a mild purgative. The diet must be farinaceous, beef-tea and mutton broth may be allowed, and stimulants if necessary. When the chest is filled with fluid, blisters applied over the affected side will favor its absorption, but they must never be used in the earlier stages of this disease. Compound iodine ointment rubbed into the chest is very useful also for the same purpose. Should the patient be getting low, iron and quinine must be ordered,

Take of Sulphate of iron.....	Twelve grains.
Sulphate of quinine.....	Half a dram.
Dilute sulphuric acid.....	One dram.
Pure water.....	Half a pint.— <i>Mix.</i>

Give 1 large tablespoonful every four hours. If dropsy of the chest follows, a physician should be promptly called in. Sometimes the fluid can only be removed by tapping. When a physician is procurable, the treatment of this disease should not be trusted to unprofessional hands.

Preventive treatment.—As in the case of inflammation of the lungs, persons who have had one or more attacks of this disease should take every precaution to guard against undue exposure to cold or wet. flannel should invariably be worn next the skin, and the chest may be covered with a shammy protector. Daily bathing with cold water is a very effectual precaution in the case of weak-lunged individuals, but it must in all cases be followed by thorough friction with a flesh brush or coarse towel, and must be discontinued if followed by chilliness. A sponge bath, taken expeditiously, is rarely attended with this danger. Every slight accession of cold in the case of such persons should be promptly attended to. (See PNEUMONIA; BRONCHITIS, ACUTE.)

PLEURISY ROOT. (See ASCLEPIAS.)

PLUM. (See STONE FRUIT, PRUNUS.)

PLUMMER'S PILL, *plum'-murz*, also called compound calomel pill, is one of the most useful alteratives, and gently diaphoretic pills or remedies in general use; it rarely acts on the bowels, and may be taken for a considerable time without affecting the system. Plummer's pill also

contains a preparation of antimony. The dose is from 3 to 10 grains. (See MERCURY, ANTIMONY.)

PNEUMONIA, *nu-mo'-ne-a* [Gr. *pneumon*, the lung], inflammation of the substance of the lungs, commonly called lung fever. When associated with bronchitis or with pleurisy, as is frequently the case, it is called, in the former case, broncho-pneumonia, and in the latter pleuro-pneumonia. It occurs most frequently in the spring and winter months; attacks males more frequently than females, owing, no doubt, to the fact that the former are more exposed to the changes in the temperature of the atmosphere. It very frequently attacks those of robust constitutions and full habits of body. It selects the right lung in preference to the left. When both lungs are attacked, the patient is said to have double pneumonia. It is comparatively rare in infancy, and very frequent and fatal in old age and debilitated constitutions. It is not contagious. Those who have had a former attack have a greater predisposition to it than others.

Causes.—It may be occasioned by any of the causes which produce inflammation in general,—vicissitudes of temperature, the application of cold, violent exercises of the body, exertions of voice, etc. The most common causes are the application of cold to the body—checking the perspiration, and determining a more than usual flow of blood to the lungs—and sudden changes of temperature. It is a disease of cold and variable climates and seasons; hence, those with a predisposition to it should seek an equable mild climate. (See INFLAMMATION, CLIMATE, HEALTH RESORTS.)

Symptoms.—It is characterized by a chill, followed by fever, difficulty of breathing, cough, dryness of the skin, heat, anxiety, thirst, and a sense of weight and pain in the chest. The pain is dull, deep-seated, and rarely acute, unless the pleura be likewise affected. At first, the cough is frequently dry, and without expectoration; but after one or two days, matter is brought up, viscid and rusty-colored, and often streaked with blood. A flushed condition of the cheeks, one or both, is invariably present in the early stages of the disease. When the pain is very severe, or a large portion of the lung-tissue is involved, the patient generally lies on the back, with the head and shoulders raised. The breathing is frequent, and is characterized by a rising and falling of the abdomen, and is known as abdominal breathing. In favorable cases, this disease may decline on the third or fourth day, but more frequently it is protracted to ten days or a fortnight. In unfavorable cases, the symptoms increase on the third or fourth day, and become more and more aggravated, until at length the patient dies, exhausted or asphyxiated. A high degree of fever, attended with delirium, great difficulty of breathing, acute pain,

and dry cough, denote great danger; while, on the contrary, an abatement of the febrile symptoms and of the difficulty of breathing and pain, taking place on the coming on of a free expectoration, promises fair for recovery.

Treatment.—In many cases, there is not much required, except careful nursing; in others, all the skill of the experienced physician is necessary to save life. Large linseed meal poultices should be applied to the chest, and covered with oiled silk, or linen, to keep in the heat and moisture. They should not be changed too frequently, and only when a fresh one is just ready to be applied. The bowels should be evacuated at the outset, with a dose of castor-oil, or citrate of magnesia. In ordinary cases, the diet should be light and unstimulating; milk may be allowed all through the case, as well as cold water, for a drink. If much prostration ensues, strong beef-tea, or beef essence, may be required, and in the case of typhoid symptoms setting in, manifested by delirium, of a muttering character, coldness of the surface, and extreme prostration, alcoholic stimulants will be necessary, as much as a dessertspoonful of brandy or whisky in milk or water, every hour or two, being occasionally required. The patient must be kept perfectly quiet in bed, company being excluded from the apartment, the air of the room be kept moist by the evaporation of boiling water, and the temperature of the room be maintained at about 55° Fahr. Blood-letting, formerly frequently used in this disease, is now seldom required, and the same may be said of those drugs which lower the system and dissipate the strength. Blisters should not be used in this affection, except by direction of a physician, as they are potent for either good or harm. One of the expectorant mixtures recommended under the article COUGH may be given if that symptom be very troublesome. During convalescence, tonic medicines, such as 2 grains of sulphate of quinine, every three or four hours, will be necessary to support the strength of the patient, as well as a nourishing, but not stimulating, diet. No account is given here of the signs recognized by percussion and auscultation, as they can only be appreciated by the trained ear of the regular practitioner.

Prevention consists in the avoidance of the causes, proper attention to clothing, seeking a mild, equable climate, paying a due regard to the *preventive treatment* in the article PLEURISY, which see. (See PLEURISY; BRONCHITIS, ACUTE; COLD, CATARRH OR COMMON COLD, COUGH, CLOTHING, CLIMATE, HEALTH RESORTS, INFLAMMATION, FEVER, AUSCULTATION, STETHOSCOPE, ETC.)

PODOPHYLLIN. (See *PODOPHYLLUM PELTATUM*.)

PODOPHYLLUM PELTATUM, *pod-o-fil'-lum* [Gr. *pous*, a foot; *phyllon*, a leaf, from the shape of its leaf], may apple, mandrake,

or wild lemon, a perennial plant—indigenous to the United States and Canada—belonging to the Nat. order *Ranunculaceæ*. The root is the part used in medicine. It is a certain cathartic; in large doses an emetic, alterative, anthelmintic, hydragogue and sialogogue. It rouses the liver to vigorous action, determines the blood to the surface, stimulates the kidneys, promotes expectoration, augments the glandular functions, and cleanses the intestinal canal of all irritating substances. In small doses it acts as a powerful alterative. Useful in scrofulous and syphilitic diseases, affections of the liver, painful menstruation, rheumatism, gonorrhœa; also administered beneficially in jaundice, dropsies, dysentery, diarrhœa, bilious remittent and intermittent fevers, childbed fever, typhoid fever, and all glandular enlargements. Its range of application is perhaps more extensive than any other cathartic medicine, and is indicated in all cases where the use of mercury is indicated.

Podophyllin, the active principle of mandrake, is the preparation most commonly used. It acts in many respects like mercurial preparations. It produces salivation in some persons, and is said to produce a powerful and lasting impression upon the glandular system and secretory organs, unequalled by any other article. Dose: of the fluid extract of podophyllum peltatum, $\frac{1}{4}$ to 1 teaspoonful; the solid extract of podophyllum peltatum, 3 to 12 grains; podophyllin, $\frac{1}{8}$ to $\frac{1}{2}$ grain, and 1 to 3 grains.

POISON IVY, OR POISON OAK. (See RHUS TOXICODENDRON.)

POISONOUS WALL PAPERS. (See ARSENIC IN WALL-PAPER, WALLS AND WALL-PAPERS.)

POISONOUS WOUNDS. (See WOUNDS, BITES AND STINGS.)

POISONS AND THEIR ANTIDOTES, *poi'-zns* [from Lat. *potio*, a potion, a drink]. Poison is any substance which, when administered in small quantities, is capable of acting deleteriously on the body. In general language, however, the term is applied to those substances only which destroy life in small doses. In medical jurisprudence it is found very difficult to lay down the exact boundary line between medicines and poisons. Dr. Taylor suggests the following definition: "A poison is a substance which, when absorbed into the blood, is capable of seriously affecting health, or of destroying life." Some poisons act in the form of gases or vapors through the lungs; others as solids or liquids, and reach the blood through the stomach or bowels, or through the skin or a wound. There are three great classes of poisons, namely, *irritants*, *narcotics*, and *narcotico-irritants*. The *first* class produce their peculiar effects on the stomach and bowels, causing much irritation and inflammation. Some poisons of this class corrode the tissues with which they come in contact—such, for example, is the action of the mineral acids;

others, possessing no corrosive action, simply irritate and inflame—of this nature is arsenic. The *second* class affect the brain and spinal cord; the phenomena they induce are headache, giddiness, palsy, and insensibility: the most familiar example is opium. The *third* class, in conformity with the name, possess a double action; they give rise to great irritation in the alimentary canal, like the first class, and after a time operate like the second on the nervous system, in producing insensibility and convulsions: strychnine and aconite are of this nature.

As a general rule, the sooner the ejection of the poisonous agent from the stomach can be procured the better. In the majority of instances, perhaps, nature effects this in a more or less perfect manner before any remedy can be employed; indeed the occurrence of vomiting is often the first symptom of the action of the poison.

These natural efforts, however, must not be alone trusted to, even if they take place, and, in almost every case, the best thing that can be done, is to excite full free vomiting. This may be brought about by any of the emetic substances so often mentioned, but sulphate of zinc, or white vitriol, in doses of from 10 to 30 grains, when it can be procured, is the agent generally preferred for the purpose. In its absence, salt or mustard may be used, and are almost always procurable; indeed any other emetic at hand should be resorted to—an infusion of chamomile or warm water in abundance; the action of vomiting being also excited by irritating the throat with the finger, or with a feather.

Next to the evacuation of the poisonous substance, its neutralization is important; indeed, in the case of such poisons as the mineral acids, it is to be the first object. It is unnecessary to repeat here the proper remedies which more especially neutralize the effects of different poisons, as they are given in the following table, but, as a general rule, milk, oily substances, and demulcent fluids, such as linseed tea or barley-water, or hasty pudding, or slippery elm tea, will be useful, if given freely, in protecting the coats of the stomach from the contact of the poison, and by interfering with the absorption of the latter into the system.

Lastly, it must be an object to counteract the effects of the poison upon the system at large; as in the case of opium, the narcotic influence is combated with forced exertion, coffee, etc., or in poisoning by prussic acid by stimulants and cold affusion.

When poisoning is known or suspected to have occurred, the first thing is to procure proper medical assistance as quickly as possible; *nothing must stand in the way of that*; the next is, to ascertain the nature of the poison, if possible, and the amount taken, the remedial measures which may be known, either by reference to such works as the present, or from other sources of information, being adopted as quickly

as may be. All vomited, and other matters—such as evacuations from the bowels—which may contain trace of, or afford clue to the poison, must be reserved for the inspection of the medical man. Sometimes, individuals, from throwing away, in the excitement of the moment, the poisoned food, or whatever it may be, have found themselves unpleasantly situated, and objects of suspicion. If there is any idea that there has been criminal proceeding connected with the poisoning, some responsible person should secure whatever may guide in the investigation of the truth, and place all under lock and key, and seal, till the arrival of the authorities; food and vomited matters should be sealed in suitable vessels.

The symptoms which would give rise to the suspicion of poisoning having taken place, are those of sudden illness shortly after taking food or medicine, the individual having previously been in good health, or at least free from the peculiar, and generally violent, symptoms developed, particularly those indicative of irritation of the stomach and bowels, or of narcotic or irritant influence upon the nervous system. When poisons are either given or taken for criminal purposes, the symptoms usually show themselves quickly and severely, on account of the dose of the deleterious substance being generally large. At the same time it is to be remarked, that the presence of much food on the stomach, sleep, and intoxication, have all been known to retard the development of symptoms from even large doses of poison. If a number of persons who have partaken of the same dish, are seized shortly after with symptoms of illness, the suspicion of poison is, of course, greatly strengthened.

In connection with poisons, the fact must not be lost sight of, that it is possible for the long-continued daily reception of even minute doses of certain poisonous substances, at last, by accumulation, to exert pernicious effects upon the system. (See MERCURY, LEAD, DIGITALIS PURPUREA, ETC.) This must not be confounded with the criminal, secret, slow poisoning, so often recorded as the practice in ages gone by, a crime which it is more than doubtful could be practised in the present day without certain detection.

Before leaving the subject of poisoning, it is requisite also to advert to the influence which habit exerts over the effects exercised by poisons on the human subject. All know how largely the habitual consumers of opium can increase their doses, and that the same is observed with respect to other drugs, chiefly of the narcotics; but the most remarkable instance of this power of habit, is in the case of the arsenic eaters of Styria and adjacent provinces, of whom it is an ascertained fact, that they habitually consume large and poisonous doses of solid arsenic, not only without injury, but with, it is alleged, apparent benefit to health; but if the habit be discontinued suddenly, death, with all the symptoms

of arsenical poisoning, ensues. (See ARSENIC.) In the following table—for the sake of convenient reference, alphabetically arranged—will be found a list of the principal poisons, with their symptoms and antidotes. It will be noticed that in the treatment there has been no notice taken of the stomach-pump as a means of promptly evacuating the contents of the stomach. In the hands of an unprofessional person it is a dangerous instrument, and is, therefore, not recommended here.

POISONS.	SYMPTOMS.	ANTIDOTES.
ACIDS, MINERAL: Muriatic Acid, or Spirit of Salt; Nitric Acid, or Aqua-Fortis; Sulphuric Acid, or Oil of Vitriol.	A violent burning in the throat, gullet, and stomach, with a shrivelled appearance of the lining membrane of the mouth. Large doses are speedily fatal.	Large draughts of lime-water; or one tablespoonful of calcined magnesia in a cupful of milk, every hour; or water strongly charged with soap; or in cases of emergency, lime from the wall pounded up and mixed with water—a teaspoonful of the lime to a cupful of water.
ACIDS, VEGETABLE: Oxalic Acid.	Burning pain in throat, mouth, and stomach; vomiting matter mixed with blood; violent purging, followed by stupor and death.	Emetic of sulphate of zinc—in half dram doses, in warm water, repeated every quarter of an hour—or mustard and water until vomiting occurs, to be followed by chalk in solution; or pounded lime in water—a teaspoonful of the lime to a cupful of water; or a strong solution of soap; or common whiting in water—a teaspoonful of the whiting to a cupful of water.
Prussic Acid.	Extreme prostration and loss of muscular power. Death very speedily.	Inhalation of ammonia vapor; cold douche; vigorous friction; artificial respiration.
ACONITE, Monkshood or Wolfsbane.	Burning in mouth, throat, and stomach, and numb feeling in same; stupor.	Emetic of sulphate of zinc—in half dram doses, in warm water, repeated every quarter of an hour—or mustard and water until vomiting occurs; then give flax-seed tea, mucilage, or slippery elm in large quantities, to protect the stomach, and keep up artificial respiration; or animal charcoal in water—a teaspoonful of the charcoal to a cupful of water.

POISONS.	SYMPTOMS.	ANTIDOTES.
ALCOHOL: Whisky, Brandy, Rum, Gin.	First, burning in throat and stomach, followed by loss of power and profound stupor. (See the article INTOXICATION.)	Evacuate the stomach by emetics, the same as in poisoning by <i>Aconite</i> , and then give large draughts of mucilaginous drinks, which see. (See the article INTOXICATION.)
ALKALIES: Ammonia, Smelling Salts, Caustic Pot- ash, Pearlashes, Soda, Lime.	Burning feeling all through the course of alimentary canal, cramps, purging, and vomiting of bloody matter.	Vinegar, lime-juice, or sweet-oil, to be given freely; then flaxseed, tea or mucilage of gum arabic, may be given freely.
AMMONIA.	See <i>Alkalies</i> (in this article).	See <i>Alkalies</i> (in this article).
ANIMAL POISONS: Bites of Poisonous Animals.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
Poisonous Fish: Mussels, Crabs, and shell-fish.	Great thirst; constant nausea; cramps; cold extremities; violent purging and great prostration.	Empty the stomach with emetic, the same as in poisoning by <i>Aconite</i> , and then give cayenne pepper, ten or fifteen grains every two hours.
Stale Fish.	Pain and sickness at the stomach; heat and pain in the eyes and head; dizziness, and often an eruption on the skin.	An emetic of sulphate of zinc, twenty grains, followed by a purgative of salts and senna, will be necessary, and then the stomach must be quieted with soda-water, or calcined magnesia, and laudanum, ten drops of the latter to twenty grains of the former, every hour, in water.
ANTIMONY: Chloride of Antimony, Kermes Mineral, Tar- tar Emetic.	Nausea; vomiting; colic; violent purging; difficulty of swallowing and great prostration.	Emetics containing much sugar—twenty or thirty grains of sulphate of zinc in syrup is suitable; or powdered nut-galls, or ten grains of tannin, in water; then mucilaginous drinks (which see), and strong green tea; then stimulants to support the patient, such as brandy, a tablespoonful every hour.
AQUA-FORTIS.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)

POISONS.	SYMPTOMS.	ANTIDOTES.
ARSENIC.	Symptoms like those of <i>Antimony</i> ; burning in throat, mouth, and stomach; faintness; pain in stomach; intense thirst; vomiting; purging; and prostration.	Hydrated peroxide of iron, in tablespoonful doses every five minutes; while this is being procured, give emetics, the same as in poisoning by <i>Aconite</i> . If the iron cannot be procured, give raw eggs beaten up; or large quantities of flour and water.
BARYTA.	Same as poisoning by alkalis.	Water slightly acidulated with sulphuric acid, to be given freely; and then give an emetic of twenty or thirty grains of sulphate of zinc.
BELLADONNA, Dwale, or Deadly Nightshade.	Great dryness and thirst; difficulty of swallowing; vomiting; loss of vision; stupor and death.	Prompt emetics, the same as in poisoning by <i>Aconite</i> , to be followed by tannin in ten grain doses, frequently repeated; apply electricity, and give stimulants, as brandy and water, or ten grains of ammonia, or twenty grains of cayenne pepper, every hour. At the same time, give cold douche, and opium in doses of one grain, every hour.
BISMUTH.	Metallic taste in mouth; burning pain in throat; vomiting; purging; cold extremities; spasms of the arms and legs.	An emetic of twenty grains of sulphate of zinc; or mustard and water; followed by copious draughts of milk.
BITTERSWEET.	See <i>Dulcamara</i> (in this article).	See <i>Dulcamara</i> (in this article).
BLUE VITRIOL.	See <i>Copper, Salts of</i> ; (in this article.)	See <i>Copper, Salts of</i> ; (in this article.)
BRANDY.	See <i>Alcohol</i> (in this article).	See <i>Alcohol</i> (in this article).
CANTHARIDES, or Spanish Flies.	Burning in throat and difficulty of swallowing; violent pain in abdomen; thirst; nausea and vomiting of bloody mucus; incessant desire to void urine; and passive.	Flaxseed tea and other demulcents (which see); at the same time friction with camphor and laudanum to the spine.

POISONS.	SYMPTOMS.	ANTIDOTES.
CAUSTIC POTASH.	See <i>Alkalies</i> (in this article).	See <i>Alkalies</i> (in this article).
CHLORINE.	See <i>Gas</i> in (this article).	See <i>Gas</i> (in this article).
CHOKE-DAMP.	See <i>Gas</i> (in this article).	See <i>Gas</i> (in this article).
COAL-GAS.	See <i>Gas</i> (in this article).	See <i>Gas</i> (in this article).
COLCHICUM.	Diarrhœa; vomiting; faintness, followed by the most dangerous collapse.	Emetic of sulphate of zinc, twenty grains; or mustard and water; and then strong coffee and stimulants to sustain the heart's action.
CONIUM MACULATUM, or Poison Hemlock.	Dizziness; nausea; a feeling as if the eyeballs were strained; prostration; stupor.	Emetic of sulphate of zinc, twenty grains; or mustard and water; followed by mucilaginous drinks (which see); friction; then cold douche; and stimulants to sustain strength.
COPPER, SALTS OF: Sulphate of Copper, or Blue Vitriol (also called Copperas), Verdigris.	Coppery taste in mouth, with intense dryness and thirst; nausea; salivation; dreadful spasms in stomach and bowels.	Emetic of sulphate of zinc, twenty grains; or mustard and water; followed by copious draughts of milk, and white of eggs, and thin syrup; or baking soda, ten grains in the above liquids every five minutes.
COPPERAS: (This term is applied to the Sulphates of Copper and Iron, or Blue and Green Vit- riol.)	See <i>Copper, Salts of</i> ; and <i>Iron, Salts of</i> ; (in this article.)	See <i>Copper, Salts of</i> ; and <i>Iron, Salts of</i> ; (in this article.)
CORROSIVE SUB- LIMATE.	See <i>Mercury</i> (in this article).	See <i>Mercury</i> (in this article).
CROTON OIL.	Burning pain in throat and stomach; cold surface; weak pulse; difficult respiration; violent purging; collapse and death.	Opiates to relieve the pain, twenty-five drops of laudanum, repeated in an hour if necessary; and stimulants, such as brandy and water, to sustain the strength of the patient.
CYANIDE OF POTAS- SIUM.	Same as <i>Prussic Acid</i> .	Same as <i>Prussic Acid</i> .

POISONS.	SYMPTOMS.	ANTIDOTES.
DEADLY NIGHTSHADE.	See <i>Belladonna</i> (in this article).	See <i>Belladonna</i> (in this article).
DIGITALIS, or Foxglove.	Same as <i>Aconite</i> .	Same treatment as for <i>Aconite</i> , and twenty to thirty drops of aromatic spirit of ammonia in water, every five minutes, to sustain the heart's action.
DOGS, RABID, BITES OF.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
DULCAMARA, or Bittersweet.	Same as <i>Belladonna</i> .	Same as <i>Belladonna</i> .
DWALE.	See <i>Belladonna</i> (in this article).	See <i>Belladonna</i> (in this article).
FISH, POISONOUS.	See <i>Animal Poisons</i> (in this article).	See <i>Animal Poisons</i> (in this article).
FOXGLOVE.	See <i>Digitalis</i> (in this article).	See <i>Digitalis</i> (in this article).
GAS: Carbonic Acid, or Choke-Damp, Chlor- ine, Coal-Gas, and other poisonous gases.	Difficult breathing; drowsi- ness; face swollen and blue.	Friction, and cold douche, and artificial respiration; treat- ment same as for drowning; in- halation of vapor of ammonia. (See the articles DROWNING, CARBONIC ACID, CHOKE- DAMP.)
GIN.	See <i>Alcohol</i> (in this article).	See <i>Alcohol</i> (in this article).
GREEN VITRIOL.	See <i>Iron, Salts of</i> ; (in this article.)	See <i>Iron, Salts of</i> ; (in this article.)
HELLEBORE.	Vomiting and purging, with violent pain in abdomen; cold sweats; convulsions; and in- sensibility.	Emetic of twenty grains of sulphate of zinc; or mustard and water; followed by mucil- aginous drinks (which see); friction; and stimulants, such as brandy and water, to sustain strength.
HENBANE.	See <i>Hyoscyamus</i> (in this article).	See <i>Hyoscyamus</i> (in this article).
HYOSCYAMUS, or Henbane.	Same as <i>Opium</i> .	Same as <i>Opium</i> .
IGNATIUS BEAN.	See <i>Nux Vomica, etc.</i> , (in this article.)	See <i>Nux Vomica, etc.</i> , (in this article.)

POISONS.	SYMPTOMS.	ANTIDOTES.
IRON, SALTS OF: Sulphate of Iron, or Green Vitriol, also called Copperas, Mu- riate of Iron.	Heat and dryness of the mouth and throat; colic, and sometimes vomiting; black and swollen appearance of tongue and mouth; pulse feeble; and skin cold and clammy.	Carbonate of soda (common baking soda), as much as will lie on a twenty-five cent. piece, every ten minutes, in water; followed in an hour with half an ounce of castor-oil.
KERMES MINERAL.	See <i>Antimony</i> (in this article).	See <i>Antimony</i> (in this article).
LAUDANUM.	See <i>Opium</i> (in this article).	See <i>Opium</i> (in this article).
LEAD, SALTS OF: Sugar of Lead, etc.	Inflamed mouth and throat; intense pain in abdomen; con- stipation; dilated pupils; lock- jaw; cold sweats; violent con- vulsions; paralysis and death.	Evacuate the bowels as speed- ily as possible, with Epsom salts; then give white of eggs in milk, and chloric ether in twenty or thirty drop doses, every two hours.
LIME.	See <i>Alkalies</i> (in this article).	See <i>Alkalies</i> (in this article).
LUNAR CAUSTIC.	See <i>Silver</i> (in this article).	See <i>Silver</i> (in this article).
MAD DOGS, BITES OF.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
LYE.	Same as for <i>Alkalies</i> .	Same as for <i>Alkalies</i> .
MERCURY and its preparations, especially Corrosive Sublimate.	Metallic taste; burning and constriction in throat; intense pain in stomach and bowels; vomiting bloody and bilious matter; diarrhoea; cramps; convulsions; prostration and death.	Emetic of twenty or thirty grains of sulphate of zinc; followed by whites of eggs, or copious drafts of milk, or flour and water paste, thin.
MONKSHOOD.	See <i>Aconite</i> (in this article).	See <i>Aconite</i> (in this article).
MORPHINE.	(See <i>Opium</i> in this article).	See <i>Opium</i> (in this article.)
MURIATIC ACID.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
MUSHROOMS.	Nausea, dizziness, pain in stomach and bowels, and often great prostration; purging; cramps; great thirst; some- times convulsions.	An emetic as soon as pos- sible, of twenty or thirty grains of sulphate of zinc; or mus- tard and water; followed by warm sweetened water mixed with milk; and a cathartic to carry off the poison in the bowels, say castor-oil.

POISONS.	SYMPTOMS.	ANTIDOTES.
NITRIC ACID.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
NUX VOMICA AND SAINT IGNATIUS' BEAN: Strychnine.	Constant twitchings; rigidity of the muscles; great pain in the stomach; sense of suffocation; difficult breathing.	Give an emetic of twenty or thirty grains of sulphate of zinc, or white vitriol, and after vomiting, full doses of chloric ether, thirty drops every half hour; or five grains of camphor in a tablespoonful of whisky, every half hour; and twenty or thirty grains of tannin. There is no specific antidote.
OIL OF VITRIOL.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
OPIUM and its preparations—Laudanum, Purgative, Morphine, etc.	Dizziness, followed by stupor; contracted pupil; cold sweats; closed eyes; flabby muscles; weak pulse; delirium and death.	Give instantly active emetic of thirty grains of sulphate of zinc; then cold douche; and strong coffee; and tannin in thirty grain doses, every half hour; and Belladonna, a teaspoonful every half hour; apply electricity, and give stimulants, such as brandy and water, and keep the patient in constant motion.
OXALIC ACID.	See <i>Acids, Vegetable</i> ; (in this article.)	See <i>Acids, Vegetable</i> ; (in this article.)
PARAGORIC.	See <i>Opium</i> (in this article).	See <i>Opium</i> (in this article).
PEARLASHES.	See <i>Alkalies</i> (in this article).	See <i>Alkalies</i> (in this article).
PHOSPHORUS.	Garlicky taste and odor; burning in throat; thirst; nausea; severe pain in stomach; distension of the abdomen; vomiting dark green matter; spasms; prostration; collapse.	A tablespoonful of calcined magnesia, followed by an emetic of twenty grains of sulphate of zinc, and plenty of demulcent drinks, as flaxseed tea and barley water.
POISON HEMLOCK, or Conium.	See <i>Conium Maculatum</i> (in this article).	See <i>Conium Maculatum</i> (in this article).
POTASH: Strong Lye.	Same as for <i>Alkalies</i> .	Same as for <i>Alkalies</i> .

POISONS.	SYMPTOMS.	ANTIDOTES.
POTASSIUM, CYANIDE OF.	Same as <i>Prussic Acid</i> .	Same as <i>Prussic Acid</i> .
POTATO FLY.	Same as <i>Cantharides</i> .	Same as <i>Cantharides</i> .
PRUSSIC ACID.	See <i>Acids, Vegetable</i> ; (in this article.)	See <i>Acids, Vegetable</i> ; (in this article.)
RABID DOGS, BITES OF.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
RUM.	See <i>Alcohol</i> (in this article).	See <i>Alcohol</i> (in this article).
SAINT IGNATIUS' BEAN.	See <i>Nux Vomica, etc.</i> , (in this article.)	See <i>Nux Vomica, etc.</i> , (in this article.)
SAVINE.	Great pain in stomach and bowels, with much excitement; nausea and vomiting; abortion in pregnant females; and convulsions.	Emetic of twenty or thirty grains of zinc, at once, followed by large quantities of milk or water, and mucilage of gum arabic or barley water.
SERPENTS, VENOMOUS, BITES OF.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
SILVER: Lunar Caustic.	Burning pain in throat and stomach; difficulty of swallowing; vomiting; diarrhœa; salivation; and great difficulty of respiration.	Emetic, followed by strong salt and water.
SMELLING SALTS.	See <i>Alkalies</i> (in this article).	See <i>Alkalies</i> (in this article).
SPANISH FLIES.	See <i>Cantharides</i> (in this article).	See <i>Cantharides</i> (in this article).
SPIRIT OF SALT.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
STINGS OF VENOMOUS INSECTS.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
STRAMONIUM, or Thorn-Apple.	Dizziness; headache; perverted vision; drowsiness; feeling of suffocation; delirium; bowels relaxed.	Large doses of tannin, twenty to thirty grains every hour; electricity; stimulants, as brandy, a tablespoonful, or cayenne pepper, twenty grains; or ammonia, twenty grains, every hour.
STRYCHNINE.	See <i>Nux Vomica</i> (in this article).	See <i>Nux Vomica</i> (in this article).

POISONS.	SYMPTOMS.	ANTIDOTES.
SUGAR OF LEAD.	See <i>Lead, Salts of</i> ; (in this article.)	See <i>Lead, Salts of</i> ; (in this article.)
SULPHURIC ACID.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
TARTAR EMETIC.	See <i>Antimony</i> (in this article.)	See <i>Antimony</i> (in this article.)
THORN-APPLE.	See <i>Stramonium</i> (in this article.)	See <i>Stramonium</i> (in this article.)
TIN, SALTS OF.	Burning pain in throat, stomach, and bowels; vomiting; great restlessness; intense thirst; hard, small pulse; delirium and death.	Emetic of twenty or thirty grains of sulphate of zinc; followed by large draughts of milk, or white of eggs, or flour and water.
VENOMOUS SERPENTS AND INSECTS, BITES OF.	(See the article BITES AND STINGS.)	(See the article BITES AND STINGS.)
VERDIGRIS.	See <i>Copper, Salts of</i> ; (in this article.)	See <i>Copper, Salts of</i> ; (in this article.)
VITRIOL, OIL OF.	See <i>Acids, Mineral</i> ; (in this article.)	See <i>Acids, Mineral</i> ; (in this article.)
WHISKEY.	See <i>Alcohol</i> (in this article.)	See <i>Alcohol</i> (in this article.)
WHITE VITRIOL.	See <i>Zinc</i> (in this article.)	See <i>Zinc</i> (in this article.)
WOLFSBANE.	See <i>Aconite</i> (in this article.)	See <i>Aconite</i> (in this article.)
ZINC: White Vitriol.	Vomiting; quick pulse; cold skin; and pale features.	Large quantities of milk.

POKE. (See PHYTOLACCA DECANDRA.)

POLYGALA SENECA, *po-lig'-a-lá sen'-e-ga*, seneka, or seneca snake root. An indigenous plant belonging to the Nat. order *Polygalaceæ*. It is found on hill-sides and in rocky woods in various parts of the United States. The dried root is the part used in medicine. In large doses, seneka is emetic and cathartic; in ordinary doses it is stimulant, expectorant, diuretic, diaphoretic, sialagogue and emmenagogue. It is very useful in chronic catarrh, protracted pneumonia, and in the commencing stages of croup. It should not be used while *active* inflammation exists. Seneka is also useful in suppressed menstruation. Dose: of the fluid extract, 20 to 40 drops; of the powdered root, 5 to 20 grains;

of the syrup, $\frac{1}{2}$ to 2 fluid ounces; of the infusion, $\frac{1}{2}$ to 2 fluid ounces. (See INFUSION.)

POLYGONUM PUNCTATUM, *po-lig'-o-num pungh-ta'-tum*, water pepper, or smart weed, a common plant belonging to the Nat. order *Polygonaceæ*. It is found growing in low places, and by creeks and ditches all over the United States and Canada. The whole plant is used in medicine, and has a pungent biting taste. It is stimulant, diuretic and emmenagogue. In the form of infusion or fomentation, it has been beneficially applied in chronic ulcers, piles, inflammation of the bowels, and flatulent colic. The infusion in cold water makes an excellent wash in salivation. It has been found eminently serviceable in suppressed menstruation from cold and other causes. Dose: of the fluid extract, 10 to 60 drops; of the solid extract, 2 to 3 grains; of the tincture, $\frac{1}{2}$ to 3 teaspoonfuls; of the infusion, $\frac{1}{2}$ to 1 fluid ounce, three or four times a day. (See INFUSION.)

POLYPUS, *pol'-e-pus* [Gr. *polus*, many, and *pous*, a foot], is a tumor, the result of the morbidly excessive growth of the mucous membrane lining a cavity. It is most frequently met with in the nose and in the womb, but also occurs in the ear, larynx, etc

Polypi vary much in texture, in some cases being easily torn, and bleeding after the least injury, at others being firm and almost cartilaginous; their color is usually gray or yellowish, and they possess but little sensibility; they are generally attached to the surface whence they spring by a narrow neck. The chief inconvenience which results from polypus in the nose, is the interruption to breathing through the nostril, at night especially; the affected person can only lie with the mouth open, which therefore becomes most uncomfortably parched. When polypus, however, in this situation, increases to a large size, it necessarily displaces the adjacent parts, such as the soft palate, or distends the nostrils. In any case, polypus is so uncomfortable a companion, that its removal is generally sought. This must, in all cases, be effected by the surgeon, by means of ligatures, scissors, or forceps, and, therefore, proper surgical advice should be resorted to. Occasionally, polypus in the nose will yield to the persevering use of astringent powders, such as that of burnt alum, or it may be regularly touched twice a day with tincture of iron, by means of a camel-hair brush. Polypus of the womb cannot possibly fall under the cognizance of unprofessional persons.

The use of the new instrument called the laryngoscope, has shown that polypus occurs much more frequently in the larynx than was formerly supposed, giving rise to affections of the voice, difficulty of breathing, resembling asthma, and other symptoms. Laryngeal polypus is capable of removal by skilled hands. (See EAR, DISEASES OF THE.)

POLYTRICHUM JUNIPERUM, *pol-e-tri'-kum ju-nip'-e-rum*, or hair-cap moss, an evergreen perennial belonging to the Nat. order *Polytrichiaceæ*. It grows on high, dry places generally, and is known by the common name of ground moss. It is a powerful diuretic, and as such has been found very useful in dropsy, gravel, and urinary obstructions. The dose of the infusion, made from any part of the plant, is 1 or 2 fluid ounces, three or four times a day; of the fluid extract, 1 to 2 teaspoonfuls, in a wine-glassful of water. (See INFUSION.)

POMEGRANATE, *pum-gran'-at* [Lat. *pomum*, a fruit, an apple, and *granatum*, grained]. This anciently-known tree—a native of Asia and Africa, is cultivated in warm countries generally. The flowers, the rind of the fruit, and the bark of the root, have been used in medicine as astringents, but the more general remedial use in modern medicine, has been that of the root bark, as a remedy in tape-worm. The original mode of administering it is to steep 2 ounces of the fresh bark in 2 pints of water for twelve hours, then to boil the whole down to 1 pint, and to give 1 wine-glassful of the strained decoction every two hours till the whole is taken. The remedy sometimes causes nausea and vomiting. The fresh root is most efficacious. When given in powder, the dose of pomegranate root is 20 grains.

POOR. (See POVERTY.)

POOR ROBIN. (See GALIUM APARINE.)

POPLAR, AMERICAN OR WHITE. (See POPULUS TREMULOIDES.)

POPPY. (See PAPAVER SOMNIFERUM.)

POPULUS TREMULOIDES, *pop'-u-lus trem-u-loi'-deez*, American, or white poplar, a tree belonging to the Nat. order *Salicaceæ*, and found growing abundantly in the Province of Quebec and in the Northern and Middle States. The bark, which is the part used in medicine, is tonic and febrifuge, and has been used with success in intermittent fever, in debility, want of appetite, feeble digestion, and chronic diarrhœa. It is said, also, to possess active diuretic properties. It contains a resin called *populin*. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 2 to 4 fluid ounces. (See INFUSION.)

PORES, *porze* [Lat. *porus*], a term applied to the minute holes or openings of the skin. The porosity of the human skin is of such a character that it has been calculated that there are a thousand holes, or pores, in the length of an inch. The whole surface of the body of a middle-sized man being estimated at sixteen square feet, it must contain no fewer than 2,304,000 pores. (See SKIN.)

PORK, *porke* [Lat. *porcus*]. The flesh of the hog is generally and justly considered the most indigestible animal food in common use. In Dr. Beaumont's table, showing the average time required for the digestion

of different articles of food, pork, fat and lean together, is shown to require above five hours for digestion. There is no doubt that much of the indigestibility of pork is due, not only to the fat, ostensibly existing as such, but to the large amount of fatty matter mixed with the muscular fibres; at the same time, pork more than other meat seems to exert marked injurious effects. In some few cases, even symptoms of poisoning have followed the use of pork as food, but in these there probably must have existed some peculiar "idiosyncrasy," or the meat must have been diseased. It is by no means unfrequent, however, for severe diarrhœa to be the result of pork diet, continued for two or three days in succession. (See BACON, TRICHINA.)

PORRIDGE. (See OATMEAL, CORN-MEAL.)

PORRIGO. (See SCALD-HEAD.)

PORTER, *poré-tur* [Lat. *portitor*], the well-known beverage, is brewed from malt very highly dried. As a tonic, it is superior to any other form of malt liquor, and especially so, because it is less likely to disagree and to become acid on the stomach than the other varieties of malt beverage; neither is it so likely to give rise to gravelly deposits in the urine in the predisposed. Dr. Prout recommends the use of porter in diabetes, not only for its tonic properties, but as less likely to prove injurious in many many cases of that disease than any other drink.

In convalescence from acute disease, porter is a strengthening medium. In order to prove of service, it must not be flat; it is, therefore, better for invalids to drink it bottled.

The robust do not need porter, nor any other liquor, as a tonic, and its habitual use by them is usually injurious. (See ALE, FERMENTED LIQUORS; STIMULANTS, ALCOHOLIC; ETC.)

PORT WINE, *porte wine*, belongs to the class of dry and strong wines, containing an average of 22.96 per cent of alcohol. The color of port is due to the coloring matter of the grape husk, which is pressed out in the preparation, along with a considerable amount of astringency and extractive matter, from which the white wines are free.

There are few, medical men at least, who will decry the virtues of port wine as a remedy, either in some stages of acute illness, or in most convalescences, but if it is to be of any service it must be genuine. Good port wine is often one of the most valuable agents in the hand of the physician; in the low stages of low fever, in diseases of debility generally, and in convalescence from most of the exhausting diseases. Gargling with port wine in relaxed sore throat is a good, but perhaps somewhat unnecessarily expensive remedy.

Some of our native wines contain the properties of the real port wine to a marked extent, and are largely prescribed by our medical men as

being preferable to the imported article, the latter being so much more liable to adulteration. (See WINE; STIMULANTS, ALCOHOLIC; ETC.)

POSITION, *po-zish'-un* [Lat. *positio*; *pono*, *positus*, to place]. The position, either of the whole body, or of the affected part, in those suffering under illness, or from the effects of accident, is one of the most important considerations connected with treatment; it is, moreover, one frequently overlooked, particularly by unprofessional persons.

In regulating position, it has for the most part to be done, either with reference to the relaxation of the muscles, to facilitate the flow of the blood or other fluids within the body, or to obviate pressure on any portion of the body.

The regulation of position, with reference to the relaxation of certain muscles, or sets of muscles, is most generally required after fractures; and the principles on which this relaxation is to be adopted, have been sufficiently alluded to under the article—FRACTURES—itself. This muscular relaxation may also be an object in the treatment of wounds which run transverse to the fibres of the muscle directly underneath, such as transverse wounds of the thigh. (See WOUNDS.)

The regulation of position with reference to the flow of blood or other fluids, is often of immense importance and too often neglected. The blood may have a tendency to gravitate towards the most dependent parts of the body, either from general or from local causes.

The regulation of position, with reference to the escape of fluids, such as matter from any part of the body, requires attention: surgeons generally take care that it is properly seen to, but it might escape the notice of unprofessional persons. As a general rule, parts should always be placed so that any discharge from them may have as free escape as possible. It is this fact, in cases of abscess, which often makes the artificial opening of the surgeon preferable to the natural one of the disease; he chooses the point for his incision where the matter can have the readiest escape; that is the lowest portion of the abscess, in the natural and unconstrained position of the body in which it is situated.

Position, with reference to pressure upon different parts of the body, particularly in persons long confined to bed, requires much attention; it has been already alluded to under articles BEDS, BED-SORES, FEVERS, etc.

There are many other points connected with the important subject of position, but the foregoing remarks—directed rather to principles than to details—will probably serve to attract a little more attention than is often given to considerations so closely linked, not only with comfort, but with the safety and well-being of the sick and infirm.

The position, or in medical language the decubitus of disease, is of great interest, as in fact the posture assumed by the patient in certain

affections is often quite characteristic, and speaks a plain and intelligible language to the medical attendant. Thus, for instance, a patient suffering from abdominal disease with pain, lies on his back with the legs drawn up. One with heart disease and difficulty of breathing, sits up in bed and refuses to lie down. One with water in the chest lies on the affected side, to give the sound side room to move freely, and cannot perhaps lie on the sound side. A patient with rheumatic fever lies on his back utterly helpless and immovable, etc. (See DISEASE, DIAGNOSIS, ETC.)

POTASII, POISONING BY. (See ALKALIES, POISONING BY.)

POTASH, POTASSA, *pot'-ash*, *po-tas'-sa* [Eng. *pot* and *ash*], KO. Anhydrous potassa is a hard gray solid, fusible at a red heat, and convertible into vapor at a high temperature. When thrown into water, it seizes an equivalent of that substance with such violence as to become red-hot during the process. Its hydrate, ordinary caustic potash, KO. HO, is a compound of very great importance. When perfectly pure, it is a hard white solid, and is generally met with in commerce in the form of cast sticks. It fuses at a red heat, and rises in vapor if the temperature be raised. The water it contains cannot be separated by heat alone. Exposed to the air, it deliquesces into a syrupy liquid, which gradually absorbs carbonic acid. It is the most powerful alkali known. It forms well-defined salts with the acids, all of which are soluble in water. Its uses in the laboratory and manufactory are manifold, both in the solid and liquid conditions. The solid hydrate, from having a great affinity for water, is used by the chemist for drying gases, for decomposing silicious compounds, and various organic substances. It is used in surgery as a caustic. It is powerfully escharotic, and is sometimes employed in the formation of issues, in the destruction of extraneous growths, and in the bites of rabid dogs. Its solution, *liquor potassæ*, is used in medicine as an antacid; dose, 10 to 60 drops, three times a day.

The solution should be preserved in green glass bottles, glass containing lead being dissolved by it. It should be kept from contact with the air, as it greedily absorbs carbonic acid, passing into the form of carbonate. The *acetate of potash* is used as a diuretic and purgative, being diuretic in doses of 10 to 20 grains, and purgative in doses of 2 to 3 drams. The *bitartrate of potash* exists in considerable quantities in the juice of the grape, and is left as a deposit in wine-casks, forming a crystalline incrustation called *argol*, or *crude tartar*. It is purified by solution and crystallization, which renders it perfectly white. When in fine powder, it is called *cream of tartar*, or *acid tartrate of potash*. It is cooling and diuretic in doses of 20 to 60 grains, and laxative in from 60 to 120 grains. There are two *carbonates of potash*, the ordinary

carbonate and the bicarbonate. Carbonate of potash exists in the ashes of inland plants, from which it is extracted by lixiviation. The *bicarbonate* is prepared by passing carbonic acid through a saturated solution of mono-carbonate, when, being less soluble, it is precipitated. It is occasionally used in medicine as an antacid in dyspepsia, and as an antilithic in urinary affections, where there is a deposition of uric acid. Dose, 10 to 20 grains. The *liquor potassæ effervescens*, or effervescing potash water, is made of 30 grains of bicarbonate of potash dissolved in 20 ounces of water; then passing into it as much carbonic gas as can be introduced by the pressure of seven atmospheres, and bottling. Dose, 5 to 10 ounces. The *chlorate of potash* is usually formed by passing chlorine through a mixture of solution of caustic potash and hydrate of lime. It is useful in scurvy, liver affections, canker, abscesses, salivation, boils, scarlet fever, diphtheria, ordinary sore throat, etc. Dose, 10 grains in water, three or four times a day. (See CHLORATE OF POTASH.)

The *citrate of potash* is a white powder of saline, feebly acid taste. It is cooling, diaphoretic, and mildly laxative, and is valuable as forming a cooling drink in fevers, and useful in gout and rheumatism. Dose, 20 to 60 grains in water. The *nitrate of potash*—*nitre*, *salt-petre*—occurs as an incrustation on the surface of the earth in hot climates, more especially in India, Arabia, and South America. In more temperate countries, especially in those not favorably situated for the importation of this salt, it is obtained by artificial processes. The fused salt is known in pharmacy as *sal prunella*. Nitrate of potash, or salt-petre, has a cool, saline taste; it dissolves in 5 parts of cold water with considerable depression of temperature, and in less than its own weight of boiling water. It is but very slightly soluble in alcohol. It is much used in medicine as a refrigerant, diuretic, and diaphoretic. In acute inflammatory diseases it reduces the febrile excitement, and is also useful as a gargle in inflammatory sore throat. Dose: 5 to 20 grains as refrigerant and diuretic; 20 to 30 grains as a sedative. There are two *sulphates of potash*, the ordinary sulphate and the acid bisulphate. The sulphate is used in medicine as an alterative and a mild purgative, acting usually without irritation. Dose: alterative, 10 to 20 grains; purgative, 1 to 2 teaspoonfuls. *Bisulphate of potash* is formed on a large scale during the manufacture of nitric acid from salt-petre, and is the *sal enixum* of the older writers. For *permanganate of potash*, see PERMANGANIC ACID.

Tartrate of potash and soda, or *Rochelle salt*, chiefly requires notice from its being the active ingredient of the well-known seidlitz powders, which consist of the common soda and tartaric acid (effervescing powder), with the addition of a dram of the tartrate of potash and soda to the alkaline powder. (See SEIDLITZ POWDERS.) Rochelle salt may, however,

be used alone as an aperient, well dissolved in water, in doses of from 1 to 6 or 8 drams; its action is rather milder than, but resembles that of Epsom salts; the taste, however, is much more agreeable. Rochelle also, is sold, generally, in crystals, but may be bought in powder. (See CHLORATE OF POTASH, CITRATE OF POTASH.)

POTASSIUM, *po-tas'-se-um*, symbol K, equivalent 38.96, specific gravity 0.865, melting-point 130° . This remarkable metal, which is the base of the alkali potash, was discovered in 1807 by Sir Humphrey Davy. It is a silver-white substance, with a slight bluish tint; at 32° Fahr. it is brittle, and has a crystalline fracture; at temperatures above freezing-point, it gradually becomes malleable, until it reaches 60° , when it is pasty. Exposed to the air, it becomes covered with a film of oxide almost immediately, and when thrown into water its affinity for oxygen is so great that sufficient heat is produced to volatilize and fire the metal. The combinations of potassium with the elements are most important. The uses of hydrate, nitrate, chlorate, and carbonate of potash have already been described. (See POTASH.)

The bromide of potassium is used in medicine as an alterative and deobstruent, especially for enlargements of the liver, spleen, etc., and has also a special power in subduing irritation of the nervous system, and is strongly recommended in hysteria, epilepsy, etc. Dose, 5 to 40 grains.

The iodide of potassium is an important salt. It is used in medicine as an alterative and stimulant of the absorbents; in this respect resembling iodine, but less irritant in its action. Dose, 2 to 10 grains. (See IODIDE OF POTASSIUM.) An ointment and liniment are also prepared of iodide of potassium. Potassium combines with sulphur in at least five different proportions.

The tersulphuret of potassium, sulphurated potash, or liver of sulphur, is used in medicine as an irritant stimulant, and diaphoretic, and both externally and internally in diseases of the skin. Dose, 3 to 8 grains.

POTATO, *po-ta'-to* [Fr. *patate*], *Solanum Tuberosum*. This well-known tuber, introduced into Ireland in the sixteenth century, from South America, by Sir Walter Raleigh, not only forms a daily article of food throughout a large proportion of the civilized world, but, unfortunately, owing to the ease with which it is cultivated, has become the staple article of nutriment to millions. As an addition to other and more nutritive food, the potato is most invaluable; as the sole article of diet, although capable of supporting life, it is a wretched material, and any combination of circumstances which induces or compels a population to depend upon it in too great a degree, must be regarded as most unfortunate.

The potato, undoubtedly, contains the elements of nutrition, that is,

starchy and gummy matters (see Food), capable of sustaining the respiratory processes, and also "plastic material," adapted to build up the muscular and other constituents of living animal bodies, but those plastic materials are so deficient in quantity, their amount is so small compared with that of the other constituents of the tuber, which, moreover, contain a very large amount of water, that a man living solely upon potatoes must consume a very large quantity to keep himself in health and strength, even if he can do the latter, when undergoing anything like exertion. From seven to ten pounds of potatoes per day is by no means an unusual amount for a laboring Irishman to consume; but the ten pounds of the root contain no more real nutriment than one pound and a half of good wheaten bread, although they afford abundant respiratory or carbon material.

Nothing can be more indigestible than badly-cooked potatoes. It is, perhaps, superfluous to point out that a well-boiled potato should break down in a mealy form to its very centre; by well-boiled, is not meant excessively boiled, for when this is done, much of the nutriment of the root is lost. In Dr. Beaumont's tables, roasted and baked potatoes are said to take but two and a half hours for digestion, whilst boiled potatoes take an hour longer.

Potatoes which boil "waxy" are peculiarly unwholesome, and often pass through the bowels unchanged; the same may be said of early potatoes—not the early kinds when matured or ripe, but as they are generally used in an immature condition,—mashed potatoes do not generally get sufficiently mingled with the saliva to secure the full digestion of their starchy constituents. (See DIGESTION.) Potatoes soaked with gravy and dripping from roasted meat, though suitable for persons of strong digestion, are very liable to disagree with dyspeptics. (See Food, STARCH.)

POTATO FLY. (See CANTHARIS VITTATA.)

POULTICE, OR CATAPLASM, *pole'-tis* [Lat. *puls*, *pultis*, a thick pap]. A poultice is generally understood to be an application adapted to afford moisture, and generally warmth, through the medium of some soft substance; or rather, it ought to afford these essentials, for, too often, cold dampness, or hardness and irritation, are the only derived effects from the ill-made and badly-applied poultices with which nurses are apt to indulge their charges.

As above stated, any soft substance which will retain heat and moisture, may be used to form a poultice; but some materials are better adapted than others for the purpose. The substances most generally used for poultices are, bread, linseed meal, oatmeal, arrowroot, carrots, turnips, etc.; bran, so often recommended in this work, as a medium for

applying heat and moisture, can scarcely be considered as a poultice properly so called. The mustard cataplasm is also sometimes called a poultice. The name cold poultice is also used.

The essentials of a good poultice are, that it shall be perfectly smooth and free from lumps or hardness, that it shall be as soft and moist as possible without being sloppy, and that it shall have sufficient bulk to retain both its warmth and moisture, without being too heavy. No material, perhaps, offers more facility for making a good poultice than bread, and accordingly we find that the

Bread Poultice is, perhaps, more commonly used than any other. The best mode of making a bread poultice, is to break the crumb of bread into a hot basin, pour boiling water over it sufficient to soak it thoroughly, and allow it to stand covered over for a few minutes by the side of the fire; any superfluous moisture being drained off, the pulp should be thickly spread upon a piece of cloth of the requisite size. In some cases it is advisable to interpose a piece of thin muslin between the poultice and the surface on which it is placed. The temperature at which a poultice is to be applied, must vary according to circumstances, but generally, the best is that which is most agreeable to the patient; occasionally it is useful to have it as warm as it can be borne. After a poultice is applied to the body, it is a good plan to cover the part, either with a fold of flannel or with oiled silk, to assist in retaining the warmth and moisture; the latter, moreover, prevents the moisture, which necessarily exhales from the application, damping the clothes, etc., often a very great inconvenience in badly-applied poultices, and resulting in colds, etc. Even under the most favorable circumstances, a poultice requires renewal at least three times in the twenty-four hours.

The cold bread poultice is often convenient, and must be made simply with cold instead of hot water. After the bread poultice, probably the

Linseed or Flaxseed Meal Poultice is more generally used than any other. For this purpose, ground linseed, free from grit should be procured. To make the poultice, a sufficient amount of boiling water is to be poured into a hot basin, and the meal stirred in till the whole is of the proper consistence; the mass being beaten smooth before use, is then to be spread evenly upon the cloth. This forms a very smooth poultice when well made, and the oil, which the linseed naturally contains, tends to keep it soft. It is rather more stimulating than the bread poultice—occasionally it is made, by mistake, of the whole seed instead of the meal.

The Oatmeal Poultice may be made in a similar way to the linseed, but, although oats contain a considerable amount of fatty matter, it is not sufficient alone, to make an oily poultice like the linseed; it is, therefore, very common to add a little lard: this, however, must not be done

when the oatmeal poultice is, as very generally made, the medium for the

Fermenting, or Yeast Poultice which, is best made by adding yeast—in the proportion of 2 tablespoonfuls to the $\frac{1}{4}$ pound of meal—to a ready-made oatmeal poultice, mixing thoroughly, and, if requisite, heating to a proper temperature. If oatmeal is not at hand, flour may be used. This poultice is a very common application in cases of mortification, or of fetid sores.

Chlorinated Soda Poultice is an excellent application for fetid, mortifying, or indolent and unhealthy sores. Boiling water, 8 fluid ounces; powdered linseed, 4 ounces; solution of chloride soda, 2 fluid ounces—stir constantly. Add the linseed to the water by degrees, then mix in the chlorinated soda.

A Charcoal Poultice is very useful in cases of fetid ulcers and sores of a sloughy character. It is made as follows: Wood charcoal in powder, $\frac{1}{2}$ an ounce; bread, 2 ounces; linseed meal, $1\frac{1}{2}$ ounces; boiling water, 10 fluid ounces. Mix the water, bread and linseed, then add half the charcoal, and sprinkle the remainder on the surface.

Mustard Poultice is prepared by mixing $2\frac{1}{2}$ ounces linseed meal gradually with 10 fluid ounces of boiling water, and adding $2\frac{1}{2}$ ounces of mustard in powder, with constant stirring. (See MUSTARD).

Arrowroot, made as for the table, has been recommended as a soothing poultice in irritable sores and the like.

Other substances, such as carrots, turnips, etc., are often recommended and used as poultices, but they possess no advantage over those already named, and are objectionable from their smell. When medicated poultices are required, it is better to make the bread poultice with the infusion or decoction of the medicinal agent.

Honey, treacle, etc., are not desirable additions to a poultice.

Bran Poultice.—(See BRAN).

Few applications are more generally used, either in regular or domestic surgery, than poultices, and, in their proper place, few are more useful. It is worthy of remark, that the most ancient poultice on record is that of figs, applied to King Hezekiah, by the direction of the prophet Isaiah.

In painful swellings, attended with inflammation, such as boils, in inflamed wounds, and the like, or for promoting the discharge of matter, no application is more suitable than the poultice. For the uses of the large hot bran poultice in internal affections (see BRAN, HEAT.) To the use of poultices, however, there is a limit, not always well observed, particularly in the case of wounds and ulcers. Up to a certain point they are most valuable, beyond it they do harm; instead of soothing and

encouraging sufficient discharge, they attract the blood too strongly to the part, increase, beyond due measure, the discharge, and encourage the formation of proud flesh. (See PROUD FLESH.)

After poulticing has been carried sufficiently far the simple water dressing (see DRESSING), is in most cases most suitable; it is cooler, pleasanter, and not so like a hot-bed as the common poultice. (See DRESSING, HEAT, SPONGIO-PILINE, WOUNDS.)

POULTRY, *pole'-tre* [Fr. *poulet*, a young fowl; *poule*, a hen], as food, must be considered under the divisions of the oily and non-oily. The flesh of the first class, including ducks, geese, etc., is certainly difficult of digestion, and perfectly inadmissible, even when plainly cooked, for invalids. The flesh of the non-oily kinds, such as common fowls, turkeys, etc., is more soluble in the stomach, but it is far from being as easily digested as generally imagined, certainly it is not equally digestible with tender mutton. The flesh of this description of poultry, as of chicken, for example, is more likely to agree if boiled rather than roasted. The flesh of poultry, when digested, does not, probably, prove so stimulant to the system as that of the larger animals, it is therefore more useful in many cases of convalescence, when animal food is first permitted. The broth made from chicken or fowl offers one of the best forms for giving animal nourishment in early convalescence.

POUND. (See WEIGHTS AND MEASURES.)

POVERTY, *pov'-ur-te* [Lat. *paupertas*]. Whilst poverty is so great an aggravation of the evils of sickness, it is, unfortunately, too often one of its most general causes. It is a perfectly well-ascertained fact that physical deprivation and physical disease are to one another as cause and effect; and, however sad the reflection, that the insufficiently fed and clothed, and hard-worked laborer, has much less chance of prolonged health and life than those more fortunately placed.

Many of the evils attendant on poverty are, unquestionably, out of the power of the poor themselves to rectify, but many others, connected with the subjects of ventilation, cleanliness, etc., which do so much to ward off the incursions of disease, are in most instances in their own hands. (See RICHES, ABLUTION, ABSTINENCE, HUNGER, STARVATION, AIR, BED-ROOM, CLOTHING, DRAINAGE, FOOD, HOUSES, WATER, ETC.)

POWDERS, *pow'-durz* [Lat. *pulvis*]. Most of the dried roots, barks, and leaves of plants, may be reduced to powder, and this form is a very common one for the administration of medicines, as in this way the peculiar actions of the drug are more readily and certainly developed. As simple powders of the majority of the drugs used in medicine are prepared, it would take up unnecessary space to enumerate them here.

Powders ought always to be kept in well-closed bottles, otherwise

they lose their medicinal properties; some, such as squill or aloes, become damp and caked into a mass.

Powders are generally administered in some thick vehicle, such as preserve, thick gruel, or the like; if given in thin fluids, such as tea, etc., they are apt to sink to the bottom, and are partly lost. (See PLANTS, MORTARS AND PESTLES, ETC.)

PRÆCORDIAL REGION, *pre-kor'-de-al*, the fore-part of the chest over the heart. (See CHEST, HEART.)

PRECIPITATE, *pre-sip-e-tat* [from Lat. *præcipito*, *præcipitatus*], something thrown down; in chemical language, the term is applied to a substance which is separated in a fluid, by decomposition, and which falls to the bottom.

PRECIPITATE, RED. (See MERCURY.)

PRECOCITY, *pre-kos'-e-te*, untimely maturity, is occasionally seen in the development of the body, and can only be regarded as a form of disease. Precocity of mind is by no means uncommon in children, and in too many instances is equally significant with undue physical development, and much to be dreaded. The morbid excitability of brain is but the result of disease, and gives no promise of super-eminence in after life. As a general rule, a precocious, or strikingly clever child, cannot be too much kept back from mental exertion; every effort should be made to divert the tendency to cerebral excitement, and by encouraging physical exertion, to divert the nervous power to the body at large; too often the reverse system is practised. (See CHILD, CHILDREN.)

PREDISPOSITION. (See DISEASE, HEREDITARY TENDENCY, ETC.)

PREGNANCY, *preg'-nan-se* [from Lat. *pregnans*], is the condition of a female between the periods of conception and delivery. The state is to be considered, both as regards the symptoms which usually indicate its existence, and also with respect to the bodily disorders which are most commonly associated with it; some of the symptoms, moreover, are also disorders. It is usually considered that pregnancy cannot take place before the establishment of menstruation, and, as a general rule, it does not, but cases are recorded in which it does.

Symptoms.—The suppression of the above function, also, is always regarded as one of the most unequivocal proofs of pregnancy, but it is not by any means invariable; cases have been known in which the secretion has appeared during the whole period up to the time of delivery, and in many it is manifested for one, two, or three months after conception. The swelling of the breasts, another sign of pregnancy, does not always occur, in a marked manner, if menstruation goes on, and may also be excited sympathetically by the presence of tumors, or by other causes of irritation connected with the womb. The breasts, also, may increase,

simply from accumulation of fat; in this case, they do not afford the somewhat knotty feeling to the hand that they do in pregnancy, but are smoother and more uniformly increased in size; probably, too, the increased deposition of fat is general. For the first few weeks after pregnancy, the abdomen is flatter than usual, that is, before it begins to enlarge. The countenance undergoes an alteration, better known than to be described; the features look sharper, and the eyes larger than heretofore; these appearances, however, are more strongly manifested in some women than others. Among the earliest and best known of the symptomatic disorders of pregnancy is nausea, with sickness. This is sometimes developed very early in the condition, occasionally within the first few days, but more generally not for two or three weeks; it is most usual in the morning, on the female first rising, but in some cases is almost constant, and is then very distressing. Toothache is not an unfrequent attendant on pregnancy in all its stages. Salivation, that is, a constant flow of saliva into the mouth, causing constant spitting, is another though not very common symptom. Irritability of the bladder is common. Heartburn is most general in the later stages of pregnancy, but may be suffered from in all. In many, there is no very definite symptom, but a general feeling of unrest, with irritability of temper, etc. As pregnancy advances, other symptoms, or symptomatic disorders, show themselves; but, frequently, after the first few months, the health which has been disordered, undergoes a remarkable change for the better, and continues good up to the period of childbirth. When this change occurs, as a sequence to symptoms of the first stages of pregnancy, and the general symptoms of the condition remain, any doubt of the true state of the case, if such has existed, may be laid aside.

Some women never enjoy such regular good health, as they do during the entire nine months they carry their child. About the sixteenth week, a little before or after, the symptom of quickening occurs. This is popularly, but erroneously, thought to indicate the period when the child first becomes endowed with life; the child is living from the commencement of pregnancy, the symptom of quickening is occasioned by a sudden change of the position of the womb, consequent upon its increase in volume; after quickening, however, the movements of the child are more perceptibly felt. Quickening is generally accompanied with temporary sickness and faintness, and with a sense of alarm for a short time. After its occurrence, the abdomen enlarges more perceptibly. Milk is now, or even before this, found in the breasts, and the capability of its expression from them, may be taken as a corroborative, but not as an absolute sign of pregnancy, for it may occur independent of that condition, and in women who have already borne children, milk is apt to

linger in the breasts for a considerable period. The nipple is sensibly enlarged after conception, and in most cases, is surrounded by a more or less colored ring, the areola, as it is called by medical men. In some females, especially those with dark hair and skin, the areola is often extremely deeply colored, of the deepest brown—from this shade it is of every variety, and in some is absent altogether; it, therefore, is not an invariable sign of pregnancy, for the reason, more especially, that it is sometimes witnessed without that condition

The urine is found to be in some cases altered during pregnancy, particularly in the latter months. If a portion of the secretion is allowed to stand four and twenty or six and thirty hours, a greasy-looking scum, with a cheesy smell, and presenting peculiar appearances under the microscope, is found on the surface. This does not show in all cases.

From the remarks above made, it may be gathered, that although there are many signs and symptoms of pregnancy, there is, probably, not one which can by itself be depended upon in doubtful cases. In most instances, the combination and perfect development of a certain number of the above symptoms make the case certain; but it may happen, that there is much difficulty in coming to a satisfactory conclusion, especially in the earlier stages, and if there is any desire for concealment.

DISORDERS DURING PREGNANCY.—By the fifth month of pregnancy, all the symptoms have for the most part become evident, but there are disorders which more generally show themselves during the latter part of the period. One of the most frequent of these is costiveness, occasioned doubtless, in part, by the mechanical obstruction, caused by the enlarged womb. The legs are apt to become swollen, or their veins to enlarge, from the same cause acting upon the large veins within the abdomen. The impediment to the flow of blood, also, exhibits itself in the formation of piles, which may cause much inconvenience during the last months of pregnancy.

Cramp in the lower limbs, caused by the pressure of the enlarged womb upon the nerves, often causes much annoyance, and sympathetic nervous pains throughout the body are not uncommon. Irritability of the bladder is apt to be much increased at this time; headaches, too, occur in some women, and may be of great severity, threatening convulsion. The above is rather a formidable array of the ailments from which many pregnant women may suffer, and some unquestionably do suffer, and severely so; but very many are free from the majority of them, except perhaps in a slight degree; as said above, some women never enjoy such perfect health as they do when “in the family way.”

The proper management of the disorders incident to pregnancy will certainly do much to alleviate their inconveniences.

The nausea and vomiting are the first which generally require attention. These may in some measure be prevented by attention to diet, and by the avoidance of all articles of food which were known to disagree, or which are found to disagree; for the rule which holds good in the ordinary state does not always do so in pregnancy. Effervescing draughts, made with soda and tartaric acid or lemon juice (see EFFERVESCENCE) are useful, and to each may be added from a $\frac{1}{2}$ to 1 teaspoonful of sal-volatile. A medical man may possibly add a drop or two of the medicinal prussic acid to each dose, but this must be left to medical regulation. If there is much acidity, the bicarbonates of soda or potash, or the fluid magnesia, will be found useful, and at the same time check the vomiting. In cases of debility, a teaspoonful of calcined magnesia, in three parts of a wine-glassful of sherry, may be given with advantage. In obstinate heartburn and indigestion, with or without vomiting, a wine-glassful of the infusion of calumba, in combination with soda, potash, or magnesia, is one of the best remedies, and may be taken twice, or if requisite, thrice a day. In cases of extremely obstinate vomiting, creasote, in doses of from 2 to 5 drops, made into an emulsion with gum-arabic, or 20 to 30 drops of chloric ether may be tried. The tincture of *nux vomica*, in 20 drop doses, will very likely prove serviceable, but can only be given with safety by a medical man.

The oxalate of cerium in 1 grain—dose, three times a day, has been strongly advocated by Professor Simpson of Edinburgh. Another remedy frequently successful in the sickness of pregnancy, is small lumps of ice swallowed at intervals.

The costiveness of pregnancy is often more troublesome to manage, as the usual, convenient, aperient pills are inadmissible, on account of the aloes they contain.

Castor-oil is the most generally useful and safe aperient when it can be taken regularly, but very many find it impossible to continue its use long, in consequence of the nausea it occasions. Senna infusion may be safely taken in the pregnant state, and in those who are of full habit, small well-diluted doses of the neutral salts, such as Epsom or Rochelle, are extremely useful. Rhubarb and magnesia is a safe combination, but generally too mild. The regular use of some form of injection (see CLYSTER) which is found to be sufficiently efficacious is one of the best methods of regulating the bowels in pregnancy, and regulated they must be in some way; there is nothing more likely, not only to increase the uncomfortable sensations incident to the condition itself, but to render delivery more difficult and recovery from it more liable to accident, than an habitually constipated condition of the bowels. When piles occur it is generally in connection with costiveness.

Irritability of the bladder, characterized by constant desire to pass urine, is sometimes very obstinate, and in the later stages, in which it depends on the mechanical pressure of the enlarged womb, very difficult to remove. It is most likely to be alleviated by the use of a broad belt or band passed round the abdomen, so as to give adequate mechanical support to the enlarged womb.

When, along with irritability of the bladder, the urine is scanty, high-colored, and deposits red sediment on standing, 10-drop doses of potash solution taken in barley water, twice or three times a day, will probably give much relief; in weakly and debilitated constitutions, 10 drops of the tincture of muriate of iron, in a wine-glassful of water, twice a day, will be perhaps a better remedy. Malt liquor is apt to increase the urinary irritation, and must therefore be avoided; and, if stimulants are required, wine and water, or weak brandy or whiskey and water are substituted.

Cramp, being dependent on a mechanical cause, is difficult to remove; it may, however, be alleviated by the use of the abdominal belt, and by strict attention to the state of the bowels and digestive organs; indeed, during the whole period of pregnancy, carefulness and moderation in diet will be found to influence greatly for the better many of the casual inconveniences.

Swelling of the legs, and of their veins, being dependent, like cramp, on mechanical causes, is to be relieved by attention to mechanical modes of treatment, particularly by care that no unnecessary accumulation in the bowels adds to the obstruction to the return of the blood through the veins, keeping the feet and legs up as much as possible; bandaging, friction, etc., are all useful in relieving the condition.

The breasts should be left as free as consistent with appearance, and the nipples especially attended to. (See NIPPLES.)

Headache, if continued and severe in pregnancy, is a symptom which must not be overlooked; it may simply be owing to costiveness, or other slight temporary causes, and be easily removable; but if it is continued, severe, accompanied with flushing of the features, fulness or redness of the eyes, throbbing of the vessels of the head and neck, medical assistance should be sought without delay; in the meantime, the measures recommended in cases of threatened inflammation of the brain are to be carried out more or less actively, according to the severity of symptoms.

Convulsions sometimes occur in pregnancy; a medical man must see the case without a moment's unnecessary delay, if possible; but if delay must occur, the patient should be managed as recommended under article CONVULSIONS, or as directed in the remarks upon the same affection after delivery. (See CHILDBED.)

Fainting is a symptom which may be of grave import: its cause should be investigated by a medical attendant; in the meanwhile, it must be treated as fainting generally, unless it is dependent on loss of blood, as in abortion. (See FAINTING, ABORTION.)

Troublesome itching on the skin, sore and ulcerated mouth, are all apt to be attendant on the condition of pregnancy; they are to be treated in the ordinary method (see SORE MOUTH; SKIN, DISEASES OF THE), but are often incurable, and disappear only after delivery.

The above are the chief physical considerations connected with this most important phase of human life; but this article would be very incomplete, without some allusion to those moral disorders and requirements, which exert so powerful an influence over the well-being and well-doing of both mother and infant. And it may be remarked, that without attention to the physical health of the body, the moral atmosphere is much more liable to be disturbed, and that the mind is much more apt to become irritable, especially if the digestive organs are disordered—as they often are—by the too great indulgence of food which is frequently thought to be not only allowable, but desirable in the pregnant state. (See FOOD, DYSPEPSIA.) The same effect follows the indolent habits so often indulged in. Unless prohibited for cogent reasons, regular sufficient exercise ought to be taken daily, up to the time of confinement—nothing tends more to preserve the health of the body or cheerfulness of the mind. It is not by any means desirable for a female, during pregnancy, to withdraw from the performance of the ordinary active duties of life; the mental engagement resulting therefrom is most beneficial, and prevents the thoughts from reverting, as they *will* do sometimes, to disagreeable or gloomy subjects. At the same time, a woman, during pregnancy, ought to be freed from any of the severer and more harrassing occupations, and as much as possible kept from mental uneasiness, and spared, as far as can be, those things which excite unpleasant emotions in the mind. That the infant is affected by the mental condition of the mother, is undoubted; she cannot be too careful in keeping guard over herself, not for her child's sake solely, but for her own in future years, when that child may display tendencies which it owes to the maternal influences of the first period of its existence.

The morbid longings of pregnancy have been already alluded to. (See LONGING.)

The probable extension of pregnancy is important, if only as a matter of convenience, to enable the mother to calculate and make the necessary arrangements for her confinement; but its precise duration, or the number of weeks or days required to complete its term, not unfrequently becomes of the most serious moment, as a point of law, on which may

hinge the inheritance of fortune or of title, or the happiness and fair fame of families and individuals. The generally allowed calculation for the duration of pregnancy is forty weeks, or two hundred and eighty days, from the last menstrual period; but, evidently, such a calculation must be liable to some variation. It is certain that cases are frequently protracted beyond the fortieth week, of calculation at least, and that these generally prove male births.

The subject of false pregnancy is of considerable interest and importance. The following remarks from Dr. Montgomery's "Signs and Symptoms of Pregnancy" are instructive, and may put some on their guard: "It is necessary," says the author, "to notice a condition of the female system of a remarkable kind, most frequently observed about the turn of life when the catamenia, becoming irregular, previous to their final cessation, are suppressed for a few periods, and at the same time, the stomach being out of order, nausea or vomiting is experienced, the breasts enlarge, become sensible, or even slightly painful, and sometimes a serous or sero-lactescent fluid exudes from the nipples and orifices of the areolar tubercles; the abdomen grows fuller, and more prominent, especially in women of full habit, and constitutionally disposed to *embon-point*; and the abdominal enlargement progressively increases, partly from deposition of fat in the integuments and in the omentum, but still more from distension of the intestines by flatulency, which, passing from one part to another, communicates a sensation like that produced by the motion of a fœtus; the nervous system is generally much disturbed, and the woman feels convinced that she is pregnant, an idea which, at the time of life alluded to, is cherished by the sex with extraordinary devotion, and relinquished with proportionate reluctance, and not unfrequently at the end of the supposed gestation, the delusion is rendered complete, and almost assumes the character of reality, by the occurrence of periodical pains, strongly resembling labor."

The occurrence of abortion during pregnancy, and the precautions to be adopted when the tendency exists, or indeed at any time, having been already treated of under the head of ABORTION, it is unnecessary to reiterate them here. (See PREMATURE BIRTH, DIOSCOREA VILLOSA, LONGING, AREOLA, BREAST, NIPPLES, COSTIVENESS, ETC.)

PREMATURE BIRTH, *pre'-ma-ture* [Lat. *præmaturus*; *præ*, before, and *maturus*, ripe]. One which occurs between the sixth and ninth month of pregnancy is generally so called; it is a contingency to be most carefully guarded against, for a child born before its regular time can scarcely be expected to have the strength and vigor of one who attains its full development in the womb. Nevertheless, cases have been known in which the early-born child has grown up hearty and strong, and there

are also cases in which, for the mother's sake, a premature labor is desirable, as giving the only possible chance of producing living offspring at all. There may be an unusually small pelvic cavity, owing to some malformation, or a narrowing of the passage through which the fœtus has to pass, so that it can only do so by an operation, involving death to the child and great danger to the mother. Of course, none but a surgeon should be entrusted with the delicate task of bringing about a premature labor, and only such a sad necessity as is here hinted at should authorize him to attempt it. (See ABORTION.)

PRESCRIPTION, *pre-skrip'-shun* [Lat. *prescriptio*], is a recipe or formula for the exhibition of medicines. The ingredients of a prescription are usually distinguished as (1) the *basis*, or active ingredient; (2) the *adjuvans*, or that which assists or promotes the operations of the former; (3) the *corrigens*, which is intended to correct anything injurious or unpleasant in the others; (4) the *constituens*, or that which blends or gives an agreeable form to the whole.

PRESERVED PROVISIONS, *pre-zervd'*. The preservation of provisions may be affected: 1st, by cold—that is, by keeping them at a temperature below that at which putrefaction takes place; 2nd, by heat, which acts by hardening and coagulating the albumen and other constituents, so that they are more disposed to resist chemical change, or by heat and dryness combined, so that the water—which is essential for the process of putrefaction—is removed; 3rd, by the use of certain agents, or antiseptics—which impart the power of resisting decomposition; and 4th, by excluding the action of the atmosphere, the oxygen of which is requisite for the putrefactive process.

PRESSURE, *presh'-ur* [Lat. *pressura*]. The effect of continued pressure upon the living body may be regarded either as a cause of disease or as a curative agent.

The effect of pressure upon the surfaces of the body, if long continued, is to cause thickening, as seen in the horny hand of the laborer, or in the corn from the tight shoe. When, however, pressure is too suddenly and continuously applied to surfaces unused to it, especially in debilitated states of body, instead of giving rise to thickening, is apt to occasion *mortification*, or at least *ulceration*. This effect of pressure is one of the most serious complications of most long-continued illnesses, in which the difficulty, and often almost the impossibility, of moving a patient, or at least of preventing continued pressure upon the most prominent points of the body, are a source of much suffering on the one hand, and of anxiety on the other. (See FEVER, BED-SORES, BEDS, AIR-BEDS, POSITION, ELASTICITY, ETC.)

The effect of pressure, as a curative agent, is often valuable. Thus,

when thickening of a part, or of a limb, has followed inflammation, the continued and even pressure of a bandage, or of an elastic covering, will do much to hasten its reduction. Tumors, such as bronchocele, will disappear under well-applied pressure. Bleeding which threatens life may be stopped by pressure properly applied (see *ARTERY*), and lately the power of pressure has been used as a remedy in aneurism, acting by interrupting the circulation of the blood through the vessel with which the aneurismal tumor is connected. The continued pressure of the atmosphere upon the surface of our bodies at ordinary elevations, by its variation, as indicated by the changes of the barometer, probably exercises a greater influence upon our health and sensations than is generally suspected. The distressing effects experienced from the diminished pressure, in part at least, by those who ascend great heights, is well known. (See *AIR*.)

PRICKLY-ASH. (See *XANTHOXYLUM FRAXINEUM*.)

PRICKLY HEAT, *prik'-le*, is a peculiar affection of the skin which affects those who live in hot climates, especially when first resident, and which also occurs in hot summers in this country. It is usually, but not invariably, accompanied by an eruption of vivid red pimples, not larger in general than a pin's head, which spread over the breast, arms, thighs, neck, and occasionally along the forehead. This eruption often disappears in great measure when we are sitting quiet, and the skin is cool; but no sooner do we use any exercise that brings out a perspiration, or swallow any warm or stimulating fluid, such as tea, soup, or wine, than the pimples become elevated, so as to be distinctly seen, and but too distinctly felt.

The proper treatment is light clothing, temperance in eating and drinking, avoiding all exercise in the heat of the day, open bowels; and last, not least, a determined resolution to resist with stoical apathy its first attacks. The intolerant itching in children may be relieved by sponging the surface with warm water to which a few grains of soda have been added.

PRINCE'S FEATHER. (See *AMARANTH*.)

PRINCE'S PINE. (See *CHIMAPHILA UMBELLATA*.)

PRINOS VERTICILLATUS, *pri'-nos ver'-te-sil-la'-tus*, or black alder, a perennial shrub belonging to the Nat. order *Aquifoliaceæ*. It grows in all parts of the United States and Canada. The bark and the berries are the parts used in medicine. Black alder is tonic, alterative, astringent, and, as a local application, stimulant. It is recommended in intermittent fevers, diarrhœa, and other diseases connected with debility, especially mortification and gangrene. It is a popular remedy in gangrenous or flabby and ill-conditioned ulcers, and in chronic

cutaneous eruptions, given internally and applied externally in form of wash or poultice. It has been employed with good effect in jaundice, and also in the treatment of dropsy. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 2 to 4 teaspoonfuls; of the syrup, the same. The infusion is used externally as a wash. A compound infusion, of equal parts of black alder and golden seal, in doses of 2 to 4 fluid ounces, three or four times a day, is an excellent preparation in dyspepsia. (See GOLDEN SEAL.)

PRIVIES. (See WATER-CLOSETS.)

PROBANG, *pro'-bang* [from *probe*], a flexible piece of whalebone, with an oval piece of ivory or a piece of sponge fixed at the end, and used by surgeons to push down into the stomach foreign bodies which stick in the cesophagus.

PROBE, *probe* [Lat. *probo*, I try], is a surgical instrument of a long and slender form, used to find out the depth or extent of wounds, etc.

PROGNOSIS, *prog-no'-sis* [Gr. *pro*, before; *gignosko*, I know], is the opinion formed respecting the future course of a disease from particular symptoms; as how long it is likely to continue; whether it is likely to terminate in recovery or death, etc. It demands great skill and experience, and even the most skilful, however anxious to allay the fears and anxieties of the patient and his friends, require to speak on such subjects with caution, for no human sagacity can anticipate the numberless influences for good or evil that may come into play during the course of a disease. The principal sources from which the elements of prognosis may be derived are (1) the disease itself; (2) the peculiarities of the patient; and (3) the external influences modifying both of the foregoing. (See DISEASE, DEATH, DIAGNOSIS, POSITION; OPINION, MEDICAL; MEDICAL ADVICE, PHYSICIAN, SURGEON, ETC.)

PROLAPSUS, *pro-lap'-sus* [Lat. *prolabor*, *prolapsus*, to fall forward], is a slipping or falling down of any internal portion of the body, so that it appears externally. The term is most commonly used with reference to prolapsus, "falling down" of the womb (see WOMB, ETC.,) and also to prolapsus of the lower gut at the fundament, "coming down of the bowel," as it is often called. (See PROLAPSUS ANI, WOMB, ETC.)

PROLAPSUS ANI, OR FALLING OF THE BOWEL, is a falling down of the lower part or extremity of the bowel. This accident is not uncommon in childhood, and in the aged, but occurs at any age, frequently in connection with piles. Coming down of the bowel often happens from children being permitted to sit too long on the chamber vessel, after a movement of the bowels; it is often too, a consequence of irritation from worms, or from stone in the bladder. The extent to which the gut is protruded, varies from the slightest possible,

to a considerable length, causing a red or purplish swelling, according to the length of time the protrusion has existed.

If quickly attended to, the protrusion is usually easily returned by pressure exerted by the fingers through the medium of a piece of greased cloth, the person being of course laid in the horizontal posture; if, who ever, the protrusion has been neglected, and allowed to continue unreduced for some hours, it becomes in a measure strangulated, congested with blood, and consequently swollen, and is then sometimes very difficult to return; in such a case a medical man will probably be required, and, indeed, ought to be called; in the meanwhile, by gently squeezing the neck of the protrusion, and exerting gentle pressure upwards, having previously applied grease of some kind to it, efforts may be made to effect its return. When protrusion of the gut occurs habitually, a medical man should investigate the cause, so that any source of irritation may be removed; the bowels should be kept perfectly lax, so as to prevent straining, and in children, especially, too long sitting at stool prevented, the seat being made so high that the legs cannot touch the ground.

Cold injections, and astringent lotions injected into the bowels are often useful. A small quantity of a solution of 1 grain of sulphate of iron to 1 ounce of rain or distilled water, may be thrown into the bowel after each relief, and retained. Bathing the loins regularly with cold water will be of service.

Some cases of protrusion depend on causes such as internal piles, which require a surgical operation for their removal. Persons liable to prolapsus of the gut, often experience much comfort from wearing a bandage consisting of a sponge, which must be moistened, or of some soft or smooth hard material, which is applied to the fundament, and kept in place by means of straps, which are best made of elastic material; the strap fastening behind and in front, to a belt passed round the body. (See PILES, RECTUM, ANUS.)

PROLAPSUS OF THE WOMB, OR PROLAPSUS UTERI.
(See WOMB.)

PROPHYLACTIC, *prof-e-lak'-tik* [Gr. *pro*, before, and *phylasso*, to guard]. Any means employed for the preservation of health; but more especially a medicine which is intended to act as a preventive to, or a defence against, disease.

PROPYLAMINE, *pro-pil-a-meen'*, a peculiar volatile alkali prepared for medicinal purposes, from herring brine. It is a colorless transparent liquid, with a strong ammoniacal odor. It was introduced into practice by a Russian physician of note as a remedy for rheumatism, and it has also been found successful in the treatment of chorea or St.

Vitus's dance. It may be given in quantities of from 15 to 20 grains a day, in divided doses of 3 grains each. (See RHEUMATISM.)

PROSTATE, *pros'-tate* [Lat. *pro*, before, and *sto*, to stand.] A gland situated before the *vesiculæ seminales*; it is about the size and shape of a chestnut, and surrounds the neck of the male bladder; in young men it is liable to become the seat of scrofulous inflammation, and in old, of chronic enlargement; the symptoms of both these forms of disease are too obscure to admit of domestic treatment.

PROUD FLESH, *prowd*, is applied to the granulations which arise on a sore in the process of healing when they project beyond the level of the surrounding parts. In such cases it will be necessary to check it by applying some caustic substance, as lunar caustic, blue vitriol, or red precipitate of mercury. (See FUNGUS.)

PROVISIONS, PRESERVED. (See PRESERVED PROVISIONS.)

PRUNUS, *pru'-nus* [Lat.], the plum, a genus of the Nat. order *Rosaceæ*, sub-order *Amygdaleæ* or *Drupaceæ*. The species *P. domestica*, and its varieties, produce the well-known fruits called plums, green-gages, and damsons. Plums, when dried, are termed prunes, or French plums.

Prunes contain a considerable quantity of sugar, and when stewed, are wholesome, and at the same time laxative. (See CATHARTICS.) Unless softened by stewing, prunes are indigestible.

PRUNUS VIRGINIANA. (See CERASUS.)

PRURIGO, *pru-ri'-go* [Lat. *prurio*, I itch], is a troublesome itching of the skin, arising from various causes, and of which there are several different kinds. Sometimes it arises from a disordered state of the stomach, and is to be treated by laxatives and a change of diet. In other cases, frequent washing in tepid water and the use of sulphur internally, will be of benefit.

PRURITUS, *pru-ri'-tus*, itching of the skin. (See SKIN; SKIN, DISEASES OF THE.)

PRUSSIAN BLUE, *prush'-an*, prussiate of iron. (See IRON.)

PRUSSIC ACID, OR HYDROCYANIC ACID. (See HYDROCYANIC ACID.)

PSOAS, *so'-as* [Gr. *psoi*, the loins], belonging to the loins. The *psœ* muscles are large muscles connected with the loins, etc. A *psœ* abscess is one originating in the loins. (See LUMBAR.)

PSORIASIS, OR SALT-RHEUM, *so-ri'-a-sis* [Gr. *psora*, the itch], an eruptive disease of the skin; also known as dry tetter.

Causes.—It is more frequently met with in anæmic persons, with a weak circulation of the blood, and a dry skin. Occasionally it is the result of hereditary tendency, and when this is not the case, it is generally

caused by intemperance, the use of highly-salted food, fish, or other indigestible substances, or by the depressing passions, anxiety, grief, etc.

Symptoms.—It is characterized by red spots or blotches, irregular in shape, slightly elevated above the sound skin, and covered with thin, dry, white scales. Sometimes it is confined to small patches on the back, shoulders, lips, palms of the hands, and the genitals, and sometimes it spreads over large portions of the skin, and may come to occupy the whole body. The scaly incrustation is frequently intermixed with chaps furrowing the skin in all directions, which, when the skin is put upon the stretch by the necessary movements of the patient, are apt to bleed and become very sore. The disease is almost invariably accompanied by an intense itching.

Treatment.—The disease is frequently one of the most obstinate to cure, when it is the result of that form of dyspepsia, characterized by an excess of acid, the warm bath and alkaline remedies are indicated, and many such cases recover as the result of daily ablutions and the internal administration of liquor potassæ, $\frac{1}{2}$ to 1 teaspoonful, in milk or water, three or four times a day. The diet should be absolutely free from all stimulants, and the bowels be regularly relieved by some mild cathartic, as the compound colocynth pill, or a glass of one of the aperient mineral waters. Preparations of arsenic have sometimes been found very useful in this troublesome affection, but it should never be administered except by direction of a physician. The local treatment consists, as mentioned above, of daily warm baths, temperature from 80° to 90°, to which a handful of washing-soda may be added; and emollient lotions. The intense itching may be greatly relieved by the application of glycerine, or a lotion made by mixing 20 drops of the oil of bitter almonds with 8 ounces of rose-water, and after straining, adding 12 grains of corrosive sublimate, and the same amount of sal-ammoniac and 1 ounce of rectified spirit. Caution would be required in using this, as the corrosive sublimate is an active poison. When the disease is not very severe, the fresh juice of the *phytolacca decandra*, or poke-root, will be found of much service, applied locally twice or three times a day. An ointment of the new remedy, chrysophanic acid, is also said to cure the most obstinate cases. (See CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF.)

PTELEA TRIFOLIATA, *te-le'-a tri-fo-le-a'-ta*, or wafer ash, an American shrub belonging to the Nat. order *Xanthoxylaceæ*. It is found growing abundantly west of the Alleghany mountains, where it is known as wing seed, ague bark, etc. The bark, which is the part employed, is tonic, and is used in remittent and intermittent fevers, in asthma and other pulmonary affections. Dose: of the fluid extract, 15 to

60 drops; of the infusion, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

PTYALISM, *ti'-q-lizm* [Gr. *ptyo*, to spit], the affection of the constitution by mercury. (See MERCURY, SALIVATION.)

PUBERTY, *pu'-bur-te* [Lat. *pubertas*], is that period of life in which boyhood or girlhood ceases and youth begins. The precise period differs in different countries, being much earlier in southern than in northern climates. The usual period in this country is from the twelfth to the fourteenth year in females, and from the fourteenth to the sixteenth in males. In colder regions, as Sweden, Russia, etc., it does not occur for two or three years later. Various physiological and intellectual changes manifest themselves at this period. The organs of respiration and voice acquire their full tone, the muscles their due proportion, and the cerebro-spinal nervous system its beautiful organization. The child puts away childish things and begins to look upon the world with, as it were, new senses; the mind becomes stored with new ideas, and hope shines over the future. The changes that take place at this period render the individual liable to a variety of diseases, more particularly of an inflammatory nature; and those diseases to which a latent tendency exists, may be roused into activity. At this time, therefore, a stricter watch than usual should be kept upon the health of the young, and any unusual symptoms at once submitted to the judgment of a medical man. (See MENSTRUATION.)

PUBLIC HEALTH. (See SANITARY SCIENCE.)

PUDDINGS, *puł'-dingz* [Lat. *botulus*, a sausage], are articles of diet, the principal ingredient of which is some farinaceous material, at least such ought to be the case when they are made for invalids. The puddings most generally admissible, and best adapted for the sick-room, are the light egg and flour, or "twenty minute" pudding, as it is often called; the simple rice, sago or tapioca pudding, the boiled bread pudding, etc. Of course, greasy puddings generally are unsuited for invalids, and for the same reason butter or sauce must be forbidden. (See FOOD.)

PUERPERAL, *pu-er'-pe-rál*, connected with childbed. (See CHILD-BED, PUERPERAL FEVER.)

PUERPERAL FEVER [Lat. *puer*, a child, and *pario*, to bear], a fever occurring in a woman who has recently passed through the pains of childbirth, and hence commonly called *childbed*, or *lying-in fever*. There are various forms of febrile disease to which women in such circumstances are liable, and to which this term is applied. In general, however, the name denotes "a continued fever, communicable by contagion, occurring in connection with childbirth, and often associated with

extensive local affections of the womb or its appendages." Sometimes the portion of the peritonæum covering the womb is the part primarily affected, when it is called *puerperal peritonitis*; the proper tissue of the womb itself may be the seat of the inflammatory action, in which case it is spoken of as *puerperal hysteritis*; the ovaries, and other appendages of the womb, may be the parts diseased; or, lastly, the veins of the womb may be the subject of attack, in which case the name *uterine phlebitis* is given to it. There may be a mixture of one or more of these varieties in the same case. If the case sets in very violently, and is accompanied with low typhoid symptoms and prostration, it is frequently spoken of as *malignant puerperal fever*. To the physician, these distinctions are of importance; to the unprofessional attendant, it matters very little the particular form the attack assumes, nor the exact location of the lesion. It is, under all circumstances, a very formidable disease, and when the symptoms hereafter described follow confinement, no time should be lost in summoning medical aid.

Causes.—When not communicated by contagion, it may be the result of violence during delivery, of cold, of careless nursing, or the injudicious use of stimulants.

Symptoms.—These will vary somewhat, according to the nature of the attack, but almost invariably there is a severe chill, pain, more or less intense, over the lower part of the abdomen, followed by heat of the skin, great thirst, quick pulse, flushed face, and hurried respiration. To these succeed nausea and vomiting, pain in the head, and thickly-coated tongue. The secretion of the milk, and sometimes the lochial discharge, is often very much diminished, or disappears altogether, and the abdomen becomes swollen and tympanitic. These symptoms may come on suddenly the third or fourth day after labor, or they may come on very insidiously; but when several of the above symptoms are present, the nurse may apprehend danger, and should promptly send for help.

Treatment.—The treatment consists in allaying the inflammatory symptoms and sustaining the strength of the patient until assistance arrives; the attendant, after the bowels have been evacuated by a dose of castor-oil, may give 1 grain of opium, or 25 drops of laudanum, every four hours, if the pain be very severe, and apply soft flannel cloths wrung out of hot water in which there are a few drops of turpentine, over the abdomen. At the same time, if there is much prostration, the strength must be sustained by milk, broths, etc. Wine or brandy, unless in a case of pressing emergency, had better be left until the arrival of the medical attendant. This is a disease in which a nurse can show her good qualities to great advantage. Quiet and cleanliness are absolutely indispensable. (See *CHILDBED, PARTURITION, FEVER.*)

PUERPERAL SWELLED LEG, OR MILK-LEG. (See MILK-LEG.)

PULMONARIA OFFICINALIS, *pul-mo-na'-re-a of-fis-in-a'-lis*, or lungwort, a perennial plant belonging to the Nat. order *Boraginaceæ*. It is found on alluvial banks over a great part of the United States and Canada. The leaves are demulcent and mucilaginous, and are used in hemorrhage from the lungs, and pulmonary affections generally. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 2 fluid ounces. (See INFUSION.)

PULMONARY, *pul'-mo-na-re* [Lat. *pulmo*, a lung], denotes of or belonging to the lungs; as pulmonary consumption. (See CONSUMPTION.)

PULSATILLA, *pul-sa-til'-la*, a preparation manufactured from a European species of anemone. It is a favorite remedy with the homœopaths, and is said to be useful in whooping-cough, to possess emmenagogue properties, and to exert a favorable influence over the mucous membrane, rendering it useful in catarrhal inflammations of the nostrils, throat, respiratory organs, alimentary canal and urinary passages.

PULSE, *pulse* [Lat. *pulsus*, a stroke], is the alternate expansion and contraction of an artery, occasioned by the propulsion of the blood by the heart, in the form of waves. The pulsations of an artery occur nearly at the same time as the contractions of the left ventricle of the heart, the difference, in a state of health, being only from one-seventh to one-sixth of a second, depending on the distance of the part from the heart.

The sympathetic connection of the central organ of the circulation, and indeed the circulating system at large, with changes and states of the whole system, render the pulse a most important guide in the investigation of those states and changes; it is, however, a guide which it requires much education and no little practical experience fully to take advantage of. Any real, definite, trustworthy information from the state of the pulse, requires more practical knowledge than unprofessional persons can possess. If the frequency of the pulse was an unvarying indication of the state of the system, and if the knowledge as to frequency or the reverse, was all that could be gathered from feeling it, the case would be different; but with certain reservation, the frequency of the pulse is, in many cases, a far less important piece of information to a medical man than its rhythm, or tone, whether it be full and bounding or jerking, or soft, or wiry, or compressible, feeble, or remittent, or intermittent, all these and other varieties of pulse convey impressions to the mind of a medical man, but the ability to receive these impressions, and to form conclusions from them, is only the result of daily, almost hourly practice. It is unnecessary to say more, to show

how very slight and imperfect the information must be which a casual feeler of the pulse can gather from the operation. At the same time, the author would not discourage intelligent persons from endeavoring to gain some practical knowledge respecting the pulse; but the above will show, that useful knowledge must be attained, either assisted, or unassisted, by practical attention.

The average pulse of a healthy man in the prime of life, may be taken as beating 72 times in the minute; but from this average, there is every possible variation, and even in the same individual, the pulse varies greatly, according to the period of the twenty-four hours; according to the time of meals; to the posture, whether recumbent, in which it is slowest, or sitting or standing, in which it is most frequent; it varies also according to physical exercise or mental emotion, and also according to external temperature.

As a general rule, when the system at large is in a state of excitement, feverish or otherwise, the pulse is increased in frequency, and modified; in depressed states of the system, unless accompanied with irritability, the contrary takes place.

By inflammation, or acute disease, the pulse may be raised to 120, or even 160 in the adult. In nearly all inflammatory diseases, the pulse is large, full, quick, hard and forcible. In fevers it is full, hard, and quick or frequent, though not so full and forcible as in inflammations. In continued fever (see FEVER), the pulse will beat from 90 to 120 strokes in a minute. In general, the quicker the pulse, the more severe and dangerous the disease.

In palpitation of the heart, the pulse is usually quick and violent, but may be feeble and rapid; and may be either regular or irregular. (See PALPITATION OF THE HEART.)

When there is not much strength in the system, from whatever cause generally, the pulse will be small, quick and soft, but sometimes a slow pulse accompanies weakness.

In affections of the brain, causing pressure on or oppression of that organ, the pulse is usually slow. If a particular portion of the body be inflamed, such as the hand or foot, the pulse in the artery going to the part is increased in force, or in the power of its beat, but of course not in frequency, unless the entire circulating system is equally excited.

An intermitting pulse is supposed either to indicate some derangement or disorder of the heart, a great state of weakness, the approach of death, or some nervous affection. By the term *intermitting* is meant that the pulse beats a few times, and then stops a beat or two, and commences again. It usually indicates the slightest degree of derangement of the heart's action. Derangements of the digestive organs, or even a

mere nausea or sickness at the stomach, whether produced by disease or medicine, will cause an intermitting pulse. It is sometimes produced by violent exercise or very rapid walking (see EXERCISE.) An intermitting pulse accompanies dropsy of the heart, of the chest, and of the brain. It is also met with in cases of disease of the valves, or of the muscular tissue of the heart. Some people, however, will have an intermitting pulse during nearly their whole lifetime, and without any apparent disease, except some slight nervous affection.

In some persons the pulse is alway quick, ranging at 90, or even more; in others it is slow, perhaps does not exceed 40 beats in the minute. Age influences greatly the frequency of the pulse. The following is the table drawn up by M. Quetelet:

Age.	Average of pulsations per minute.
Birth.....	136
5 years.....	88
10—15.....	78
15—20.....	69
20—25.....	69
25—30.....	71
30—50.....	70

According to other observations, the pulse in many children is found not to be more frequent than it is in adults; as a general rule, however, it is so. It is, moreover, a generally received opinion, that the pulse of the aged is slower than that of the young—the reverse is the fact.

Most persons are aware that the pulse is distinguishable at the wrist, about an inch above the wrist-joint of the thumb, the pulsating artery lying by the side of the strong tendon of a muscle of the fore-arm. The pulse is felt by the fore and middle finger together. Although felt most conveniently in the wrist, it may be felt in any of the arteries of the body. It is sometimes more perceptible in the temporal artery—the radial artery being small. The radial artery will sometimes divide, and the larger branch run upon the outside of the radius. In this case, the pulse in the usual place will be weak, while the circulation is really strong and vigorous. It devolves upon the physician to guard against this mistake, as the patient may be considered very weak, when there is nothing ailing him. We have witnessed several instances of this nature. (See ARTERY, CIRCULATION OF THE BLOOD, HEART.)

PUMPKIN SEEDS, *pump'-kin*, are mucilaginous and diuretic, and are of service in urinary affections. The infusion may be drunk freely. The expressed oil, in doses of from 6 to 12 drops, three or four times a day, promptly relieves scalding urine, and spasmodic affections of the water passages. A strong infusion of the seeds has been effectual in removing tape-worm. M. Mongeny, a physician of the island of Cuba,

says: "I used to give to patients affected with tape-worm three ounces of a paste made with fresh pumpkin seeds, and afterwards six ounces of honey, in three doses, the first an hour after giving the paste, and the others at the same intervals. Six or seven hours afterwards, the tape-worm was generally expelled; and this remedy has succeeded in cases which had resisted all the means generally employed."

PUMPS, LEAD, *pumps, led*, for water—are apt to prove dangerous. (See LEAD.)

PUMP, STOMACH, is an instrument made on the principal of the injection syringe. It ought only to be used by a medical man.

PUNCTURED WOUNDS. (See WOUNDS.)

PUPIL. (See EYE.)

PURE AIR. (See AIR, HOUSES, VENTILATION, DISINFECTANTS, ETC.)

PURGATIVES. (See CATHARTICS.)

PURPLE AVENS. (See GEUM RIVALE.)

PURPLES, THE. (See PURPURA.)

PURPURA, *pur'-pu-ra* [Lat.], popularly "the purples," is a disease in which the blood escapes from the smaller or capillary vessels; it is best known from its outward manifestations on the skin, on which account it is often but erroneously classed as a skin disease, whereas it is truly a constitutional affection, which, although most visibly manifest on the skin, yet exhibits its effects in various internal portions of the body.

Symptoms.—The attack of purpura may be sudden, or it may be preceded for a week or more by symptoms of general illness, lassitude, feebleness, etc. Purpura generally first shows itself on the legs, in the form of red or purple spots, of various sizes, which do not elevate the skin, and do not disappear on pressure; in the course of a few days, these spots become changed to a brown or greenish yellow; in fact, they go through the same changes in color that we see in a bruise, in which, as in purpura, effusion of blood has taken place beneath the skin. The above description applies to purpura in perhaps its mildest form; when more severe, the spots or blotches are spread over the body, and blood is discharged from the mucous membranes of the nose, mouth, stomach, bowels, bladder, etc., constituting a most fatal affection, which may occur either alone, or in connection with other diseases, such as fever, measles, small-pox, etc.

Treatment.—Such a disease as purpura is of course not one for domestic management, and ought, if possible, on its earliest appearance, to be confided to proper medical care. It may occur in the strong and plethoric, in which case, of course, lowering measures, perhaps bleeding, may be called for, or at least free purging, with calomel and jalap, or podophyllin (which see); the administration, two or three times a day, of 1

or 2 drams of Epsom salts, dissolved in water, each dose being acidulated with 15 drops of diluted sulphuric acid, would be very suitable treatment.

Most frequently, purpura is a disease of debility, and requires treatment the very reverse of lowering; quinine, in grain doses, three or four times in the twenty-four hours, will be useful, along with strong animal broths, wine, or porter, and tonic remedial measures generally. Turpentine, in 10 or 15-drop doses, given three or four times in the twenty-four hours, has proved an invariable remedy. Having been found useful in different species of hemorrhage, the juice of the common nettle might, in places where other remedies are not procurable, prove of service.

Where the tendency to purpura exists, with debility, means of strengthening should be resorted to which have been recommended under article DEBILITY. In every case, however, whether threatened or actual, a medical man must be called without delay. (See DEBILITY.)

PURULENT, *pu'-ru-lent* [Lat. *purulentus*], consisting of pus or matter. (See Pus.)

PUS, OR MATTER, *pus* [Lat.], is, or rather ought to be, a smooth, yellow, cream-like fluid; when warm it exhales a faint sickly odor. Under the microscope, pus is seen to consist of granules—somewhat larger than the globules of the blood—which float in a transparent serous fluid. The above are the properties of healthy pus, which, however, may differ very greatly from the standard; it may be thin, and serous, or flaky as it is in a scrofulous abscess; it may be bloody, it may be fetid, etc. Pus is a consequent of inflammation, its formation is, in fact, the “termination” of that process by “suppuration” (see INFLAMMATION), and may be formed in various situations and textures. It is the most general secretion from an ulcer. When contained in a cavity formed in the substance of any of the bodily tissues, it constitutes an abscess; it is a frequent consequence of inflammation, either of mucous or of serous membranes, in the one case constituting a purulent discharge, in the other, a purulent effusion, such as takes place in the chest. In some cases, it is extremely difficult to distinguish the mucous, purulent, and mucopurulent discharges from mucous membranes, from one another. (See ABSCESS, INFLAMMATION, ULCERS AND ULCERATION, ETC.)

PUSTULES, *pus'-tulze* [Lat. *pustula*; *pus*, pus], are elevations on, and partly in the skin, which contain matter. A pustule may commence as such, when it is usually conical in shape, or it may commence as a vesicle, as in the cases of small-pox or cow-pox; the vesicle in the first place, containing transparent lymph or fluid, and its contents afterwards becoming purulent, constituting it a pustule. (See SKIN, DISEASES OF THE; ACNE, ECTHYMA, IMPETIGO, SCALD-HEAD, PUS OR MATTER, ETC.)

PUTREFACTION, OR PUTREFACTIVE FERMENTATION, *pu-tre-fak'-shun* [Lat. *putris*, putrid, and *facio*, to make], is the peculiar chemical change undergone by many organized bodies after death. (See DECOMPOSITION, FERMENTATION, CARBONIC ACID, ANTISEPTICS.)

PUTRID SORE THROAT. (See SCARLET FEVER, DIPHTHERIA, ETC.)

PYEMIA, *pi-e'-me-a*, or blood-poisoning, a diseased state of the blood caused by the introduction of decomposing animal matter.

Causes.—The system is predisposed to attacks of this kind by any of those causes that produce a low state of the constitution, such as profuse loss of blood, deprivation of food, great anxiety of mind, organic disease, impure atmosphere, etc. A great many of the cases follow injuries or operations on the bones, and others supervene on exposure to the contagion of puerperal fever or erysipelas.

Symptoms.—There is an infinite variety in the symptoms that accompany an attack of pyemia. In general, however, the patient is seized with severe shiverings, has a rapid pulse, dry tongue, sallow skin, anxious countenance, headache, nausea, a sense of oppression in the region of the heart, and if there be any healthy suppuration going on, it is at once arrested. The most characteristic result is profuse suppuration. Numerous abscesses, known as *metastatic*, *secondary* or *multiple abscesses*, are formed, usually in the lungs and liver, but at other times in the eye, about the joints, or in any other part. They sometimes form very rapidly. This disease is always a serious and very often a fatal complication.

Treatment.—If the disease has followed an accident or an operation, leaving an open sore, it must be kept scrupulously clean, the dressings be changed frequently, the patient's whole body to be daily sponged with salt and water, and his linen not allowed to remain unchanged more than twenty-four hours; the room must be well-ventilated, and be thoroughly disinfected with chloride of lime or carbolic acid. To sustain the strength of the patient until the poisonous effects pass off, stimulants, brandy, wine, ammonia; and tonics, iron, quinine, with strong animal broths, must be regularly administered. Patients suffering from this dangerous complication should never be trusted to unprofessional treatment: all the care and skill of the physician is required to save life. (See ABSCESS.)

PYLORUS, *pi-lo'-rus* [Gr. *pule*, a gate, and *ora*, keeper], is the lower orifice of the stomach, through which its contents pass to the bowels. (See STOMACH.)

PYRETHRUM PARTHENIUM, *pi-re'-thrum par-the'-ne-um*, or feverfew, is a European plant, cultivated throughout the United States and Canada. The whole herb is used, and is tonic, stimulant,

carminative, and emmenagogue. It is used in flatulence, hysteria, irregular menstruation, and suppression of the urine. Dose: of the fluid extract, $\frac{1}{4}$ to 1 teaspoonful; infusion, $\frac{1}{2}$ to 2 fluid ounces, three or four times a day. (See INFUSION.)

PYREXIA, *pi-reks'-e-a* [Gr. *pur*, fire], is a term applied to fevers, on account of their burning nature. (See FEVER.)

PYROLA ROTUNDIFOLIA, *pi-ro'-la ro-tun-de-fo'-le-a*, or false wintergreen, a perennial plant belonging to the Nat. order *Ericaceæ*. It grows in damp, shady woods in various parts of the United States and Canada. It is sometimes known as canker-lettuce. It is used in sore throat, ulcerations of the mouth, and in urinary affections. It forms a large part of a popular nostrum for epilepsy. Dose: of the decoction, 2 fluid ounces, three or four times a day; solid extract, 2 to 5 grains. (See DECOCTION.)

PYROLIGNEOUS ACID, *pi-ro lig'-ne-us* [Gr. *pur*, fire; Lat. *lignum*, wood], is acetic acid obtained by the "destructive distillation" of wood.

PYROSIS. (See WATER-BRASH.)

PYROXYLINE, OR GUN-COTTON, *pi-roks'-e-lin* [Gr. *pur*, fire; *xulon*, wood], a substitutive compound of explosive character, discovered by Schonbein, formed by immersing cotton, tow, linen, sawdust, or any other form of cellulose, in a mixture of equal measures of oil of vitriol and nitric acid. It is specially characterized by its explosibility and solubility in a mixture of ether and alcohol. Dissolved in a mixture of ether and alcohol, and mixed with a certain proportion of some soluble iodide, it forms ordinary photographic collodion, which is also used in surgery to form an artificial skin to excoriated surfaces.

PYRUS MALUS, OR THE APPLE TREE, *pi'-rus ma'-lus*. This is a well-known tree belonging to the Nat. order *Rosaceæ*. It is a native of Europe, but naturalized in this country. The bark is bitter, and contains a principle called *phloridzin*. Apple-tree bark is tonic and febrifuge, and has been used with advantage in intermittent fever, and in convalescence from acute diseases. The fruit contains malic and acetic acid, and is a healthy and useful article of diet. As a general rule, uncooked apples should not be eaten by dyspeptics, nor by those predisposed to gout or rheumatism. Baked, stewed, or roasted, the apple is an agreeable article of diet in febrile diseases and those affections characterized by an eruption of the skin. Apple-tea may be made by boiling a tart apple in $\frac{1}{2}$ a pint of water, and sweetening with sugar. Phloridzin, in doses of from 5 to 20 grains, has cured ague when quinine has failed. Dose: of the powdered apple-tree bark, 10 to 20 grains; syrup, 1 to 2 fluid ounces; decoction, 1 to 4 fluid ounces. (See DECOCTION.)

Q.

QUACK, QUACKERY, AND QUACK MEDICINES, *kwak'*. The following is Johnson's definition of a quack: "A boastful pretender to arts which he does not understand; one who proclaims his own medical ability in public places; or an artful tricking practitioner in physic." Though often confounded, there is a wide difference between the terms *empiric* and *quack*. The latter boasts of a secret mode of treatment applicable to all forms of disease; the former, because a certain remedy has been found efficacious under certain circumstances, concludes that it will always effect the same result in the same disease, and prescribes accordingly, without any scientific reason for his course of action. The *empiric* must be, to a certain extent, an educated man; the *quack* may be, and generally is, an ignoramus. There, perhaps, never was a time when quackery was so rampant, and *patent or quack medicines* so numerous, as at the present day.

Under this article, the writer cannot do better than quote the remarks of Dr. Letheby, of London, as found in the columns of "The Family Friend: "

"If any of our readers have ever been the victims of quackery, we venture to say that it was through the medium of a cunningly-devised advertisement; for this is at all times the great decoy of the quack. He knows its power, for he can count its results by thousands; and he spares no pains to use it with advantage. He studies it as he would a science; and he pays as much attention to the skilful practice of it, as many do to the exercise of a noble art. The idea of curing disease or of benefiting mankind has no place in the mind of the quack; and even if it had, it is associated with too much ignorance to be of use. The one single object which he has in view is that of getting money by deception, and he cares not how it is accomplished, or at what cost it may be to the life and health of the community."

QUADRUPED, *kwod'-ru-ped* [Lat. *quatuor*, four, and *pes, pedis*, a foot], an animal having four feet.

QUARANTINE, *kwor-an-teen'*, or *kwor'-an-teen* [Low Lat. *quarentena*; Lat. *quatuor*, four]. Among the sanitary regulations which nations have agreed to observe in their intercourse with each other is that of performing quarantine, which consists in travellers and passengers from a foreign clime remaining for a certain period in their ship,

or a building appropriated to such a purpose, before being allowed to mix with the inhabitants of the place which they visit.

QUARTAN, *kwor'-tan* [Lat. *quartanus*, belonging to the fourth]. A term applied to an ague, the paroxysms of which occur every fourth day. (See AGUE.)

QUASSIA. (See SIMARUBA EXCELSA.)

QUEEN OF THE MEADOW. (See EUPATORIUM PURPUREUM.)

QUEEN'S-ROOT, OR QUEEN'S-DELIGHT. (See STILLINGIA SYLVATICA.)

QUERCUS, *kwor'-kus*, the oak. A forest tree belonging to the Nat. order *Corylaceæ*. There are many species, a large proportion of them growing throughout the United States. The *quercus alba*, or white oak; the *quercus rubia*, or red oak; and the *quercus tinctoria*, or black oak, being the species most employed in medicine. The bark is the part used. Oak bark is somewhat tonic, powerfully astringent, and anti-septic. It is used with advantage in intermittent fever, obstinate chronic diarrhœa, chronic mucous discharges, and in certain forms of passive hemorrhages. It will be found very serviceable when administered to sickly and debilitated children, and in severe diarrhœas, particularly when the result of fevers. It is essential to add aromatics, and sometimes castor-oil, in cases of diarrhœa and dysentery. The decoction forms an excellent gargle for relaxed uvula and sore throat, and an astringent injection for the whites, prolapsus ani, piles, etc. The ground bark made into a poultice, is very useful in gangrenous or mortified conditions. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; solid extract, 10 to 20 grains; decoction, 1 to 2 fluid ounces. (See DECOCTION.)

QUICKENING. (See PREGNANCY.)

QUICKLIME. (See CALCIUM, DISINFECTANTS.)

QUICKSILVER. (See MERCURY.)

QUINCE SEEDS, *kwinsé*, when boiled in water, yield a mucilaginous decoction, which is not, however, in any way superior to other more common preparations. Two drams of the seeds are ordered to be boiled in 2 pints of water for ten minutes, and the decoction strained.

QUININE, OR QUINIA, *kwe-nine'*, *kwin'-ine*, *kwi'-nine*, or *kweenen'*, *kwin'-e-a* [Fr.], an alkaloid found in the bark of trees belonging to the cinchona or Peruvian bark family. Besides quinine, these barks yield five other similar alkaloids; but as they are not used to any extent, it will not be necessary to enumerate them. Quinine occurs most in the yellow bark, or *Cinchona flava*. The quantity varies in different specimens, from one to four per cent. Quinine being very insoluble in water, it is generally used in medicine in the form of sulphate or disulphate,

which dissolves readily in alcohol and water. Quinine is one of the most valuable febrifuges and antiperiodics that we possess. In large or long-continued doses it causes headache, deafness, ringing in the ears, dizziness, nausea, and sometimes delirium and stupor. When these symptoms come on, the system is said to be in a state of *cinchonism*, and they indicate that the full effect of the drug has been produced, and that no benefit can follow by continuing it any longer. Quinine acts better when given on an empty stomach, and in solution with "dilute sulphuric acid," rather than in a solid state. In unprofessional hands, the practice of giving large doses of quinine during the paroxysm of ague and other periodic affections, is not without danger, and it is as effectually, and much more safely given in small doses of from 1 to 2 or 3 grains every three hours, during the intervals between the paroxysms. It is used principally as a febrifuge and antiperiodic in ague and remittent fever, and as an antiperiodic in neuralgia, angina pectoris, rheumatism, nettle-rash, puerperal insanity, and many other diseases that generally or occasionally assume a periodic character. In combination with "dilute sulphuric acid," it is one of the very best tonics that can be administered in convalescence from typhus, typhoid, and scarlet fevers, diphtheria, typhoid pneumonia, and other diseases which have greatly prostrated the system. (See SULPHURIC ACID.) It is powerful in the sinking stage of typhoid fever, combined with port wine. When the stomach will not bear quinine in solution, it may be administered in the form of pill, and its characteristic effect has been produced by giving it in an enema (see CLYSTER), and by injecting it under the skin by the hypodermic syringe; this, of course, can only be done by a medical man.

Many elegant and useful combinations of this substance have recently been introduced, among which might be mentioned, valerianate of quinine, highly recommended as nervine, antispasmodic, tonic and febrifuge; dose, 1 grain; and the citrate of iron and quinine, most serviceable in debility and facial neuralgia, etc.; dose, 5 to 10 grains.

The picrate or carbazolate of ammonium (see CARBAZOTIC ACID) has lately been introduced as a substitute for quinine in the treatment of ague; it is said to be quite as efficient, and has the advantage of being much less expensive.

Dose: of quinine, as an antiperiodic, 2 to 5 grains, every three or four hours, during the intervals of the disease; as a tonic, 1 to 2 grains, three or four times a day before eating. (See CINCHONA, AGUE.)

QUINSY, OR TONSILLITIS, *kwin'-ze ton-sil-li'-tis* [corrupted from Fr. *esquinancie*; Low Lat. *cynanche*]. This is a very common disorder, consisting of inflammation of the tonsils, uvula, and soft palate; if it

penetrate beyond the mucous membrane it is apt to end in suppuration. It recurs from time to time; and when the inflammatory action runs high, extends to the neighboring salivary glands. It occurs most frequently in the young and full-blooded, and some persons seem naturally predisposed to it; and it is noticed to run in certain families.

Causes.—Its most frequent cause is exposure to cold and wet; sometimes it assumes an epidemic form, attacking many persons in a comparatively short space of time; but it does not spread by contagion. It very rarely proves fatal, but runs its course in nine or ten days. In some rare instances it has extended into the organs of voice, and assumed a much more serious character.

Symptoms.—On looking into the mouth, the tonsils, uvula, and fauces are seen to be red and swollen; sometimes numerous white patches are noticed upon the surface of the tonsils, having the appearance of little ulcers. There is great difficulty experienced in swallowing, and it is attended with acute pain; the eustachian tube leading from the back part of the throat to the ear becomes stopped up, and causes partial deafness; the breathing is not affected, except in the worst cases.

Treatment.—The patient should be kept in a warm room, and placed on broth diet, as it is impossible for him to swallow any kind of solid food; he may take beef-tea, arrowroot, gruel, and tapioca made with milk; the bowels must be regulated by mild purgatives, and a linseed poultice applied to the throat; in some cases a camphor liniment does good. Steam of hot water should be inhaled; and currant jelly may be sucked down to act as a stimulus to the relaxed mucous membrane. This affection is often constitutional, depending upon a low state of health, and then requires supporting treatment. Wine must be freely allowed, and some form of iron prescribed; and this drug will be rendered more useful by combining it with chlorate of potash, which seems to have almost a specific action upon diseases of the throat.

Take of Powdered chlorate of potash.....One and a half dram.
Tincture of perchloride of iron.....Two drams.
Dilute hydrochloric acid.....One dram.
Pure water.....Eight ounces.—*Mix.*

Give 2 tablespoonfuls every four hours.

When suppuration has set in, and puriform matter is collecting in the substance of the tonsils, they must be punctured, or the breathing will become much interfered with. In all cases of quincy in which the inflammatory symptoms are severe, we must guard against its extending into the air-passages, for then we have a comparatively harmless disease converted into one which is most pernicious to life, as we shall see

when considering acute inflammation of the larynx, in the article LARYNGITIS.

QUITCH GRASS. (See TRITICUM REPENS.)

QUOIT PLAYING. (See EXERCISE.)

QUOTIDIAN, *kwo-tid'-e-an* [Lat. *quotidianus*; *quotus*, what, and *dies*, a day], a term applied to an ague, the paroxysms of which occur daily. (See AGUE.)

R.

R. or R̄, at the commencement of a medical prescription, is a contraction for recipe. (See RECIPE.)

RABBIT, *rab'-bit*. The rabbit, like other game, is extremely easy of digestion, apart from the various dressings and stuffings.

RABIES, *ra'-bi-eez*, as a term, is usually synonymous with hydrophobia or canine madness. (See BITES AND STINGS, HYDROPHOBIA.)

RADISH, *rad'-ish* [Lat. *radix*, a root, a radish]. The radish is pungent and antiscorbutic; but like most other vegetables which are eaten uncooked, is not suitable for persons of weak digestive powers.

RADIUS, *ra'-de-us* [Lat.] One of the bones of the fore-arm. (See ARM, ANATOMY.)

RAGWEED. (See AMBROSIA.)

RAGWORT, GOLDEN. (See SENECIO AUREUS.)

RAIN. (See BAROMETER, DAMP.)

RAISIN, *ra'-zn* [from Lat. *racemus*, a bunch or cluster]. The dried grape, in which the mucilaginous, and perhaps acid constituents of the fresh fruit have been converted into grape sugar in the process of desiccation. Raisins are used in various medicinal preparations. As an article of diet they are unwholesome only if the tough, indigestible skins are eaten. In the case of children, much disorder is frequently caused by the undigested skins of raisins passing into the bowels, and lodging in the sacculi or little pouches of the large intestines, where they cause much irritation, and probably troublesome diarrhœa, which is only relieved when a dose of castor-oil, or of some other aperient, clears out the offending accumulation. Raisin skins may thus lodge in the bowels for weeks.

RANUNCULUS, *ra-nun'-ku-lus*, or buttercup, a genus of plants belonging to the Nat. order *Ranunculaceæ*. There are many species which are common to both America and Europe. The leaves of almost all the species possess a very acrid property, said to be due to a

crystalline principle called *ranunculin*. The bruised leaves are useful in domestic practice as a rubefacient, and if left long in contact with the skin, will produce vesication. They lose their virtue when dried, and consequently are not much used. The distilled water will act as a prompt emetic.

RAREFACTION, *rar-e-fak'-shun* [Lat. *rarus*, thin, and *facto*, to make]. The act of making a substance less dense; this is generally effected by the increase of temperature; the term being mostly applied to elastic fluids, which expand by heat, and so become *rarefied*. To solids and liquids we apply the terms dilation and expansion; to aeri-form fluids rarefication, which it has been found by experiments with the air-pump can be carried to so great an extent as to cause air to occupy a volume 13,000 times greater than it does ordinarily. Air in a highly rarefied state, as it is at great elevations, which will cause the same effect as heat does below, is unfit for breathing. Travellers who ascend high mountains, and persons who go up in balloons, frequently experience the most acute pains at every breath they draw.

RASH, *rash* [Fr. *rache*], is a popular term for eruptions on the skin, more especially such as rose-rash or scarlet-rash, nettle-rash, etc., which do not present either vesicles or pustules. Mild aperients, as rhubarb or magnesia (which see), attention to diet, cooling drinks, and tepid baths, will generally effect a cure in ordinary rashes. For full treatment of rose-rash, nettle-rash, etc., see SKIN, DISEASES OF THE. (See also HIVES, PRICKLY HEAT, ERYTHEMA, ETC.)

RASPBERRY, *raz'-ber-re*, or *ras'-ber-re*. The raspberry is one of the most wholesome fruits we possess, either in its fresh state, or preserved. In the latter form, it is a most grateful addition to the sick-room comforts. In fever, and feverish diseases generally, when the acid is not an objection, the well-known raspberry-vinegar is both an agreeable and salutary beverage. When the acid is inadmissible, a pleasant drink is made by mingling the preserve, or jam, with water. The raspberry has valuable medicinal properties, for which see RUBUS.

RASPBERRY, GROUND. (See HYDRASTIS CANADENSIS.)

RASPBERRY VINEGAR. (See RASPBERRY.)

RATANY, OR RHATANY. (See KRAMERIA TRIANDRA.)

RATTLE-ROOT. (See BLACK COHOSH.)

RATTLESNAKE ROOT. (See NABALUS ALBUS.)

RATTLESNAKES, BITES OF. (See BITES AND STINGS.)

REACTION, *re-ak'-shun*, in Medicine, is the resistance of the animal system to depressing causes; a resistance, however, which tends not only to restore to the ordinary level of action, but to go farther, and to stimulate to action above that level; thus, after the cold stage of fever,

the reaction to the hot gives a skin hotter than usual, a pulse quicker and probably stronger than usual; the same effect occurs in reaction after depression from other causes, such as after accident; in combatting, therefore, especially by means of stimulants, the depression which in such cases at first seems almost to threaten life, the after reaction must not be lost sight of, and the means of relieving the depression administered with a sparing and judicious hand. When reaction can be procured by the natural powers of the system, by external warmth, and by warm, comparatively unstimulating fluids, such as tea, etc., it is better effected than by the use of more powerful excitants. In some cases, however, the latter are absolutely necessary to preserve life, and then ammonia, in some form, but especially as sal-volatile, alcoholic stimuli, such as wine and brandy, and the others, are all powerful promoters of reaction. In some peculiar cases, emetics of mustard, by rousing the system, greatly assist reaction. (See SHOCK, ACCIDENTS.)

READING, OR SPEAKING ALOUD, *reed'-ing*, is a good exercise for those who have sound healthy lungs, and are free from affections of the throat and bronchial passages; but, by those who are predisposed to consumption, such exercise should be avoided as much as possible; as, if persisted in, there will, probably, ere long be spitting of blood, huskiness, dry cough, and other bad symptoms. Where there is a predisposition to head affections, also, loud and continuous reading or speaking, should be avoided, as the quickened respiration and circulation, which are caused by this practice, will be likely to bring on an attack of apoplexy. In cases of hysteria and nervous disorders, however, this exercise may be recommended as remedial, provided it be not carried beyond the strength of the patient. Those who are obliged to read or speak much, as ministers, lecturers, etc., should be careful not to expose themselves to fogs or cold air, and to moisten the throat occasionally with a little water, or some demulcent or acidulous drink. (See SINGING, VOICE, SPEECH, CLERGYMAN'S SORE THROAT.)

RECIPE, *res'-e-pe* [Lat. *take*], is a name sometimes applied to a medical prescription, from the symbol *R* denoting recipe, with which it begins.

RECOVERY. (See CONVALESCENCE.)

RECREATION, *rek-re-a'-shun* [Lat. *recreatio*], or the renovation of the powers of body or mind, after they have been exhausted by toil, is one of the highest pleasures enjoyable by man; a real pleasure, because it can only be purchased by those previous exertions, in the performance of which, although they are exertions, man feels that he is fulfilling the ends of his being.

The subject of recreation involves a great practical truth. Those

who do not work cannot know recreation; without the action, there can be no reaction, for the one follows the other as effect follows cause, and when all is in order, as a necessary cause.

Again, recreation must alternate with work, if the power of working is to be retained. If recreation cannot be enjoyed without work, neither can work be enjoyed, or vigorously pursued, without recreation; but the fact has been greatly overlooked in this busy age, and work is pursued unceasingly, until either body or mind sink under the never ending tension, or, if they do endure, until the power of taking recreation is lost, until the mind becomes so immersed in its daily engagements, in its daily routine, that it cannot divest itself of the trammels thrown around it.

The kind of recreation in which a man should indulge must, of course, depend greatly upon circumstances, but, generally speaking, a complete change of scene and air is desirable, such as will break in upon old trains of thought, give new ideas, and afford pleasurable recollections, when the active exertions of life are again returned to.

Recreation, reaction after toil, or in other words, periodical stimulation of mind and body, in those who work, is so strongly instinctive that it will be sought, and if not found in one way, in the reading-room, the lecture, the concert, the garden, the croquet lawn, the base-ball ground, the fete or the excursion, will be procured in the bar-room, or in degrading and vicious pursuits.

To sum up, the stimulus of recreation is one of those stimuli necessary for the continued healthy tone of both mind and body; it cannot be neglected without injury to both; its gratification ought to be directed into those channels which will preserve its utility, because they preserve it in order, in moderation, and in purity. (See EXERCISE, HEALTH RESORTS, PLEASURE, TRAVELLING, EXCITANTS, ETC.)

RECTUM, *rek'-tum* [Lat. *rectus*, straight]. The rectum is the terminating extremity of the large bowel which opens at the anus, or fundament. It derives its name from its straight course, as compared with the tortuosity of the other portions of the intestines; it is about nine inches in length, lies in front of the sacrum (see PELVIS), and expands into a dilatation just above the external opening, or anus, at which it is closed by a sphincter muscle, which retains the contents of the bowel, unless, when under the influence of the will, it permits their expulsion.

The rectum is subject to various diseases, which generally require efficient surgical assistance for their safe and speedy cure.

Children are occasionally born with what is called "imperforation" of the rectum, that is, the gut, instead of being an open canal, is closed

wholly or partially, either at the external opening, or higher up. When imperforation of the rectum in an infant is either evident or is suspected, from the non-passage of the natural contents of the bowel downwards, from the belly becoming tense and full, and from vomiting of the contents of the bowels, the child should at once be seen by a surgeon, for it is possible that a simple operation, adopted without loss of time, may rectify the evil, and preserve life.

Obstruction of the rectum, painful or otherwise, may occur either in adults or children, in consequence of the presence either of hardened faeces, in considerable quantity, or of foreign bodies which have descended after being swallowed, and become fixed in the gut, just above the lower opening, or which have been introduced directly into the canal, either by accident or design.

The dilatation of the rectum just above the anal opening, rather favors, in some cases, the accumulation of the hardened faecal contents of the bowels, especially in the aged, a condition which is apt to occasion much suffering and inconvenience. Such an accumulation generally requires the aid of the surgeon, who removes it by mechanical means, such as scoops, and such like instruments; or the handle of a spoon is sometimes used in the absence of the above. In proper hands, the case is, of course, safe, but it would not be well for unprofessional persons to attempt such interference; much, however, may be done by the persevering use of mild injections of about half a pint of fluid at a time, which will first soften and finally induce the discharge of the mass. For infants, the finger is the best and safest instrument for clearing the rectum from fecal matter.

Foreign bodies lodged in the rectum may produce distress simply from their bulk, or they may produce much suffering by lacerating the lining membrane by sharp edges or points, causing intense pain on any attempt being made to evacuate the bowels; children not unfrequently suffer in this way, from the stones of plums, etc., which they have swallowed, and the author has seen a case in which the greatest agony was apparently caused in a child, by the hard core of an apple becoming fixed at the opening. In all such cases, it is advisable to get proper advice at once, but in the absence of this, injections of tolerably thick gruel may be used, or the finger, well-greased, may be carefully introduced within the gut, to ascertain, if possible, the presence, and assist the removal of any small body within reach, but no instrument can be safely used except by a medical man. (See ENTERITIS.)

Obstruction of the rectum may likewise be the result of disease which causes narrowing or "stricture" of its canal; this disease, which generally occurs after middle life, may either be of a simple

or of a cancerous nature. The symptoms of *simple stricture* are slow, painful and imperfect evacuations of the bowels, the desire to empty the rectum continuing after the most powerful and prolonged efforts of expulsion, the discharge of fluid matters with great force, as if from a squirt, the appearance of the solid evacuations in the form of slender cylinders, or small round masses, and the admixture of a large quantity of mucus, often bloody, with the feculent excretions. The disease generally manifests itself very insidiously, and before long is usually accompanied with a distended state of the abdomen, which is owing partly to retention of the intestinal contents, and partly to a tympanitic condition, induced by the irritation thus occasioned. The desire to empty the bowels becomes at length almost incessant, and the frequent attempts which are made to do so, being seldom followed by any evacuation, except of fluids, there is a risk of erroneously supposing that the patient labors under diarrhoea; and with this view of prescribing medicines which have a tendency to increase the distension of the intestines. It is only requisite to add that when such symptoms as the above show themselves, there is but the one course left, that of procuring the best advice as soon as possible. (See ENTERITIS.)

Ulceration of the lining membrane of the rectum, fissure at the anal opening, and other diseases, especially the last-named, which produce painful sensations, when the bowels are evacuated, can only be properly investigated and treated by a surgeon.

Falling, or "prolapsus" of the bowel, and piles, have already been considered under their proper articles. (See PROLAPSUS ANI, PILES.)

Fistula is a disease connected with the rectum, which often causes much inconvenience, see FISTULA. (See also ALIMENTARY CANAL, ABDOMEN, INTESTINES, ETC.)

RECTUS, *rek'-tus* [Lat. straight], a term applied to certain muscles and some other parts, from their straight appearance, as *rectus abdominalis*, etc.

RED CEDAR. (See JUNIPERUS.)

RED CENTAURY. (See SABBATIA ANGULARIS.)

RED CLOVER. (See CLOVER, RED AND WHITE.)

RED COCKSCOMB. (See AMARANTH.)

RED ELM. (See ULMUS FULVA.)

RED-GUM, OR TOOTH-RASH, *red'-gum*, is an affection peculiar to infancy, and is characterized by an eruption of small red pimples, coming in successive crops, and attended frequently with intense itching. Sometimes it covers nearly the whole body.

Causes.—Too much clothing, unwholesome food, excessive heat of the nursery, or painful gums from teething.

Treatment.—If the gums are very much swollen and tender, relief may be obtained by freely lancing them; the bowels must be relieved by magnesia or castor-oil, and scrupulous cleanliness be enforced, avoiding at the same time the use of irritating soap, which occasionally gives rise to the complaint. The itching may be relieved by sponging the surface with lime-water, or the following lotion may be used:

Take of Borax, powdered	Two drams.
Glycerine, pure.....	One-half ounce.
Water.....	One-half pint.

Apply with a soft sponge, two or three times a day. The ventilation of the room must, of course, be attended to, and the clothing lessened.

RED OAK. (See *QUERCUS*.)

RED PEPPER, OR CAYENNE PEPPER. (See *CAPSICUM*.)

RED PRECIPITATE. (See *MERCURY*.)

RED PUCCOON. (See *SANGUINARIA CANADENSIS*.)

RED RASPBERRY. (See *RUBUS*.)

REDUCTION, *re-duk'-shun* [Lat. *reductio*]. In Chemistry this signifies the process by which a substance is restored to its original or natural state. In Surgery it is the operation by which a dislocated bone is restored to its proper situation. (See *DISLOCATIONS, CHEMISTRY*.)

REDUNDANCY OF BLOOD. (See *PLETHORA*.)

REFLEX, *re'-fleks* [Lat. *reflecto, reflexus*, to turn back], a name given to that kind of nervous action in which impressions made on the extremity of one nerve are propagated to the extremity of another through the nervous centre without the intervention of the will.

REFRIGERANTS, *re-frij'-ur-ants* [From Lat. *re*, again, and *frigus*, cold], in Medicine, are remedies employed to reduce the existing temperature of the body, either locally or generally. The best and most direct refrigerant, is the obvious one, cold itself, used through the medium of cold air, cold water, or ice, and in most cases, when the animal temperature is raised above the natural standard, in some of these forms cold is useful.

REGIMEN, *rej'-e-men* [Lat. *rego*, I govern], a term used to denote the regulation of the diet and habits of an individual with a view to the preservation of health or the cure of disease. As the particulars of regimen are sufficiently entered into under the various articles, it is superfluous to notice them further here. (See *DIET, MEALS, TRAINING; RULE, LIVING BY; EXERCISE, CLOTHING, SLEEP, OCCUPATION, ETC.*)

RELAPSING FEVER, *re-laps'-ing* [from Lat. *re*, again, back, and *labor*, to fall or slip]. The variety of fever to which this name has been assigned is only known to occur in an epidemic form. Though frequently severe, it is very rarely indeed fatal.

Symptoms.—Like all febrile complaints, this disease commences with shivering, which, as a general rule, comes on quite suddenly, the person attacked being up to that time in the enjoyment of his usual health. Following the shivering, are headache (often very acute) and the usual symptoms of a disordered state of the stomach and bowels—namely, a foul tongue, nausea, and not unfrequently vomiting, loss of appetite, and thirst. In very severe cases, the surface of the body and the white portions of the eyes become yellow in color; in short, jaundice supervenes. At the termination of a week from the first occurrence of these symptoms, usually on the seventh day, a crisis takes place, generally by a profuse perspiration over the whole body; in a few instances by bleeding from the nose; in others by a diarrhœa; and then, though considerably weakened, the patient is virtually convalescent. The restoration to health does not, however, continue for more than five to eight days, for usually, within that period, the original symptoms recur, perhaps in a mitigated form, but perhaps even more severely than at the first—shivering, headache, disorder of stomach, by which the individual is again prostrated. This is the relapse. The febrile symptoms which constitute it continue for a like period, and are once more terminated by a profuse perspiration, or in the other ways already mentioned. After this, probably a permanent convalescence commences; but, in not a few instances, a second relapse, and in a few even a third, take place.

Treatment.—In the way of treatment, it will generally be found that some degree of relief is afforded by free action of the bowels in the early stages, and from the employment of one of the ordinary febrifuge remedies, such as the spirit of mindererus. Many methods of preventing the relapse have been tried; all have, however, failed. Quinine, bibeeirine, arsenic, and other antiperiodic remedies, have proved useless; emetics and divers plans, quite ineffectual. The relapse will come. It is of great consequence, in the interval of freedom from fever, before its recurrence, that the patient should live quietly, and that the appetite, which may be fully restored, be not fully indulged.

RELAXATION. (See RECREATION, EXERCISE, PLEASURE, HEALTH RESORTS, EXCITANTS, ETC.)

REMEDIES FOR THE HOUSEHOLD. (See HOUSEHOLD MEDICINES.)

REMITTENT, OR BILIOUS FEVER, *re-mit'-tent* [from Lat. *re*, back, and *mitto*, to send], a peculiar form of fever, characterized by intense headache, and by the falling and rising of the symptoms once every twenty-four hours, giving rise to what is known by physicians as a *remission* and an *exacerbation*. It is frequently known as *bilious*, or *bilious remittent fever*, because it is almost invariably associated with symptoms of

disordered liver, and *lake fever*, because it prevails often along the borders of inland lakes. A malignant form of remittent fever, met with in the Southern and Southwestern States, is known as *congestive* or *pernicious remittent fever*. Next to the intermittent, it is the most prevailing type of fever in the middle, southern and western portions of this continent. It is, in fact, the prevailing summer and autumn epidemic of those regions, and unacclimated visitors are peculiarly liable to its attacks.

Causes.—A high degree of atmospherical temperature seems almost necessary to the production of this disease, as it may almost always be found in hot climates, and is the result of malarial causes, much moisture, and decaying vegetable matter.

Symptoms.—For some days preceding an ordinary attack of intermittent fever, the patient complains of languor, nausea, aversion to food, a sense of uneasiness and distress in the stomach, and more or less pain and feeling of tightness over the eyes, with, generally, a constipated condition of the bowels. These symptoms are followed by a chill, sometimes amounting to nothing more than a feeling of coldness, lasting for several hours and succeeded by increased heat of the whole surface; the skin is dry, the face flushed, the eyes red, the respiration irregular and the pulse quick and frequent. There is more or less pain in the back and extremities, a feeling of great fulness and tension in the head, and constant nausea—often amounting to the ejection of everything taken into the stomach—the vomited matter having a bitter taste, and yellowish or greenish-yellow appearance. There is much thirst, a costive condition of the bowels, and an almost constant hawking and spitting of a tough, glairy matter; the tongue is generally moist, red at the tip and edges, and coated, sometimes very thickly, with a light-brown or yellowish fur. After the disease has lasted some days, the skin and the white of the eyes acquire a yellow tinge. This train of symptoms, constituting the period of *exacerbation*, lasts from six to twelve hours, when they gradually abate, the skin becomes moist, and the patient falls asleep, or the skin continuing dry, the patient is restless and uneasy. This condition, known as the period of *remission*, lasts for some hours, longer or shorter according to the violence of the attack, when the period of exacerbation returns, the symptoms often being marked with increased violence. In the more intense forms of this fever, all these symptoms are very much aggravated, the exacerbations are longer and the remissions are shorter and less distinct, running rapidly into each other until the fever becomes almost *continued* in its character. The usual duration of remittent fever is from nine to fifteen days, but it frequently continues three or four weeks, followed by a very protracted convalescence. What is known as the *congestive* or *pernicious* variety,

sometimes attacks very suddenly, causing profound prostration, from which the patient only partially rallies, and proves fatal in a very few days. Jaundice, enlargement or induration of the liver, anasarca and affections of the spleen are some of the sequels of remittent fever.

Treatment.—In the highly inflammatory forms of this disease, and where there is great pain in the head and back, much relief is obtained by the application of a few leeches near the seat of the pain, and by cupping along the spine. Venesection should not be practised except on the advice of a physician. Where there is great and persistent heat and dryness of the surface, great benefit results from sponging with cold water, and equally important with the external application of cold water is the internal administration of the same remedy. The patient may be allowed to drink freely of cold water or of iced lemonade. Not only does it prove grateful to the patient, but it diminishes the heat of the system, relaxes the skin and promotes free perspiration. The bowels should be freely evacuated early in the attack, and those cathartics should be used which produce viscid, dark-colored stools. The following is an excellent form for this purpose:

Take of Calomel.....	Six grains.
Podophyllin.....	Six grains
Leptandrin.....	Eighteen grains.— <i>Mix.</i>

Divide into 6 powders, one of which may be given as circumstances demand, followed by a dessertspoonful of castor-oil or 1 to 2 fluid ounces of senna-tea. Where there is much irritability of the stomach, relief may be obtained by the application of a few leeches, or a blister over the epigastrium. Small pieces of ice may be allowed to dissolve in the mouth, and a few drops of chloric ether or creasote water may be given every half hour. Watson says he has seen the most persistent vomiting controlled by the administration of 1 grain of sugar of lead in a small quantity of water, every hour or two. During the exacerbation, 1 dessertspoonful of the spirit of mindererus, with 20 drops of sweet spirit of nitre, in $\frac{1}{2}$ an ounce of water, may be given every three hours. This serves to promote perspiration and to maintain the secretion from the kidneys. When a complete intermission in the symptoms has been brought about, and no signs of inflammation are present, quinine in doses of 3 grains, with the addition of a few drops of elixir of vitriol, may be given every four or six hours, and will generally accelerate a cure.

The room of a bilious fever patient should be kept perfectly cool and well-ventilated, but not exposed to any glaring light. Light bed-clothes should be employed, and be frequently changed, and the patient be kept as quiet as possible. Until the symptoms are subdued, the patient

should not be troubled with much food, and then only of the lightest description. During convalescence, the patient must be guarded from any sudden changes of temperature, from too much fatigue, such as sitting up too long or too often, and from errors in diet; the change from light to strong food must be very gradually made. If the appetite remains weak, a tonic, in the shape of $\frac{1}{2}$ an ounce of infusion of calumba or wild cherry bark, may be given three or four times a day. In the graver forms of this fever, medical aid should always be promptly summoned.

Preventive treatment.—The preventive treatment of this disease is the same as that described under article AGUE. Unacclimated persons are generally the first attacked by this disease; persons so exposed should also read the directions given under article ACCLIMATIZATION.

REMITTENT, INFANTILE.—There is a peculiar form of fever, prevalent in childhood, to which the name of *infantile remittent* has been given. In the great majority of cases this is *typhoid fever*, and the cases present more or less distinctly the chief features of that malady as it is seen in the adult. Children from two to ten years of age suffer from it most frequently.

Symptoms.—Usually the affection comes on suddenly, and the febrile excitement runs high; but after the continuance of a hot skin and quick pulse, with pain in the head, loss of appetite, and other feverish symptoms, for some hours, these all undergo a great change, becoming much less observable; and when morning arrives, the child is found almost free from fever. As the day advances, the condition of feverishness returns; and so the disease continues for a few days, but it may also be for weeks. With these symptoms, there is very generally found some sufficient cause of irritation, perhaps in the mouth, the child losing his teeth at the time; or, as happens more frequently, in the stomach and bowels. The latter are generally very irregular, diarrhœa occurring at one time, constipation existing at another; worms, moreover, are often present. The child is irritable and very fretful.

Treatment.—While the disease lasts, small doses of rhubarb and magnesia should be given to regulate the bowels, unless diarrhœa exists; and, if so, line water, with a little milk added, will be found useful. Quinine should be given in doses proportionate to the age of the child ($\frac{1}{2}$ a grain to 1 grain, three or four times, at intervals, during its continuance), and it may be alternated with the mindererus spirit, which, when a little sugar is added along with the water, children usually take quite readily. The warm bath, or the application of hot fomentations over the belly, should not be neglected.

As to diet, that must for a time be of the simplest possible description,

the lighter farinaceous articles being alone permitted—arrowroot and sago. The child is thirsty, and may be allowed water to drink.

Cases of this nature must always be carefully watched, for during their progress various symptoms of a serious and alarming nature are apt to be developed, sometimes connected with the head, sometimes with the belly.

When convalescence is fully established, much caution is requisite in regard to diet.

RENAL, *re'-nāl* [Lat. *renalis*; renes, the reins], belonging to the kidneys. (See KIDNEY; KIDNEY, DISEASES OF THE.)

RENNET, OR RUNNET, *ren'-net* [Ang.-Sax. *gerunnen*, coagulated], the inner membrane of the calf's stomach, which, when infused in hot water, yields a fluid which has the property of coagulating milk, and converting it into curd and whey.

REPRODUCTION. (See STERILITY.)

RESIDENCE. (See HOUSES.)

RESIN, OR ROSIN, *rez'-in*, *roz'-in* [Lat. *resina*], the residue of the distillation of turpentine from various species of *Pinus* and *Abies*. The color of the resin depends on the amount of heat applied, the greater the heat the darker the color. It is never given internally; finely powdered, it is occasionally applied as a styptic to recent wounds. The ointment is useful in cases of foul and indolent ulcers. A substitute for the basilicon ointment is made by melting together 8 ounces of powdered rosin, 4 ounces of yellow wax, and 16 ounces of simple ointment. (See BASILICON.)

RESOLUTION, *rez-o-lu'-shun* [Lat. *resolvo*, I loosen], is applied to the dispersion of swellings, indurations, etc., or the termination of inflammation without any abscess, mortification, etc. (See INFLAMMATION.)

RESPIRATION, *res-pe-ra'-shun* [Lat. *re*, and *spiro*, I breathe]. Breathing, in its widest sense, is the process by which atmospheric air is brought into contact with the fluids existing in the interior of organized beings, whether vegetables or animals; in man, it is the function by which atmospheric air is introduced or drawn into the lungs or respiratory organs, and again expelled, after its oxygen has been exchanged for the carbonic acid with which the venous blood is loaded as it enters the lungs. The air brought into contact with the blood is decomposed, its oxygen uniting with the blood, whilst its nitrogen is returned by expiration unchanged, with an additional quantity of carbonic acid gas. Thus the process of respiration in man comprises, first, the act of drawing in the air, or *inspiration*; and secondly, that of expelling the air, or *expiration*. The mechanical part of the function of respiration is effected by

the action of the ribs and diaphragm. About twenty respirations take place in a minute. The quantity of air changed by each act of respiration is variously estimated by different observers; but the average amount may be stated to be from twenty to twenty-five cubic inches.

For much further information on the important subject of respiration, see AERATION, AIR, OXYGEN, NITROGEN, CARBONIC ACID GAS, CHOKEDAMP, BLOOD, CHEST, CIRCULATION OF THE BLOOD, LUNGS, PHYSIOLOGY, VENTILATION, RESPIRATOR, ETC.

RESPIRATOR, *res'-pe-ra-tur*, is the name of an instrument worn over the mouth in order to impart warmth to the air which is drawn into the lungs in breathing. It is composed of numerous layers of wirework, usually from eight to twenty-four, fixed in frames of very thin silver or other metal, and the whole bound together or enclosed in a border or case of soft leather, with usually an outer coat of a very fine and open woolen fabric over it. The warmth of the exhaled air in passing through the wires is imparted to the metal, and is communicated to the fresh air before being inspired. In this way the lungs are protected from the influence of cold air, and those in whom these organs are delicate are in this way enabled to go out in the open air even when the weather is severe.

A handkerchief of silk or woolen material is at once a simple and efficient respiratory protector. When respirators of close material cause difficulty of breathing, open knitted protectors of Shetland wool may be used. (See RESPIRATION, AIR, ETC.)

REST. (See SLEEP.)

RESUSCITATION, *re-sus-se-ta'-shun* [Lat. *resuscitatio*]. The restoration to sensibility of persons apparently dead, is sufficiently treated of under articles CARBONIC ACID, CHOKEDAMP, COLD, DROWNING, HANGING, ETC.

RETCHING, *reech'-ing* [Sax. *hræcan*, to stretch, to vomit; properly, to reach], an ineffectual attempt to vomit. (See NAUSEA, VOMITING, ETC.)

RETE MUCOSUM, *re'-te mu-ko'-sum* [Lat. for mucous net], the internal layer of the outer or scarf-skin. (See SKIN.)

RETENTION OF URINE. (See ISCHURIA; URINE; BLADDER, DISEASES OF THE; ETC.)

RETINA. (See EYE.)

RETIRING FROM BUSINESS. (See OCCUPATION.)

RE-VACCINATION. (See VACCINATION.)

REVERY, *rev'-e-re* [Fr. *rever*, to dream, or be light-headed], properly raving or delirium, but as generally understood, a voluntary abstraction, an inactivity of the whole or greater part of the external senses to the impressions of surrounding objects during wakefulness. Dr. Good

describes three species of this mental aberration, which he calls: (1) *Absence of mind*, in which the attention is truant, and does not yield readily to the dictates of the will; (2) *Abstraction of mind*, in which the attention is riveted, at the instigation of the will itself, to some particular theme unconnected with surrounding objects; (3) *Brown study*, in which the attention has the control of the will to relax itself, and give play to whatever trains of thought are uppermost.

RHAMNUS CATHARTICUS, *ram'-nus kath-ar'-te-kus*, or buck-thorn, a European plant belonging to the Nat. order *Rhamnaceæ*. The berries and juice are powerfully purgative. They are seldom used alone, but generally to assist the action of other medicines. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the syrup, $\frac{1}{2}$ to 1 fluid ounce.

RHATANY, OR RATANY. (See *KRAMERIA TRIANDRA*.)

RHEUMATIC FEVER. (See *RHEUMATISM*.)

RHEUMATISM, *ru'-ma-tizm* [Gr. *reuma*, a watery humor, and *reo*, to flow], is the term applied—not very accurately, it must be allowed—to pains situated in the joints, and in various parts of the muscular system, for these may differ essentially, both in their nature and exact seat. Rheumatism may be defined as a blood disorder, in which there is a tendency to inflammatory affections of the fibrous textures of the body; its usual manifestation is in those parts where fibrous textures exist, and more especially in the joints.

It rarely occurs in infancy, very seldom before puberty, and only occasionally in old age; the affection which is called rheumatism in the aged is most generally only stiffness of the muscles, accompanied with a considerable amount of pain. The greatest number of cases occur in persons from fifteen to forty years of age, and from their increased exposure to cold and wet, men are more subject to its attacks than women. There are more persons attacked in spring, summer, or fall, than in winter, it being the variable character of the weather, and the sudden transitions in the temperature, rather than the degree of cold, that predisposes to the disease. Rheumatism is not contagious, and is rendered dangerous chiefly from the fact that it is liable to be accompanied or followed by serious affections of other organs, more particularly inflammation of the heart or its appendages, and dropsy.

It is customary to speak of two kinds of rheumatism, which, though in numerous examples, perfectly distinct the one from the other, are, in not a few, so blended as almost insensibly to pass into each other. The one is *acute rheumatism*, or, as it is often named, *rheumatic fever*, *inflammatory rheumatism*, or *articular rheumatism*; the other, *chronic rheumatism*. Severe rheumatic pain in the muscles of the back is known as *muscular rheumatism*, or *lumbago* (see *LUMBAGO*), in the

muscles of the neck, *stiff-neck* (see NECK), and in the muscles of the side *pleurodynia*. In the latter case it is often mistaken for an attack of pleurisy. (See SIDE, PAIN IN THE.)

Causes.—As may be inferred from what has already been written, the chief causes of rheumatism are hereditary tendency, over-exertion of the physical system, impure air and food, and undue exposure to cold and moisture, especially to sudden alternations of temperature.

ACUTE RHEUMATISM, RHEUMATIC FEVER, OR INFLAMMATORY RHEUMATISM.—*Symptoms.*—Acute rheumatism, or rheumatic fever, is characterized by symptoms of high inflammatory fever, there is shivering, great heat of skin, followed by profuse sour-smelling perspiration; the pulse is rapid and full; the tongue, covered with a white, creamy looking fur, is red at the tip and margins; there is much thirst, and the appetite is deficient. Delirium does not often occur, unless the heart becomes involved. As a rule the bowels are constipated, though occasionally there is diarrhoea, and the urine is scanty and high-colored and loaded with uric acid. Coincident with the above constitutional symptoms, one or more of the large joints, or some of the tissues in the neighborhood of a joint, become exquisitely tender, swollen, and inflamed, the skin over the affected part turning red. Whatever may be the part or joint first affected in a case of acute rheumatism, it rarely becomes the fixed seat of the disease, which, before long, almost invariably transfers the site of its manifestation to some other joint, leaving the one previously affected entirely free, or nearly so; this shifting from one place to another, goes on during the whole period of the disease, and, indeed, constitutes its most characteristic and well-marked feature.

Treatment.—The treatment of acute rheumatism is not, either likely or desirable, except under peculiar circumstances, to be trusted to unprofessional management; the long continuance of the disease, its painful nature, and above all, the possibility, almost probability, of so serious a complication as affection of the heart arising during its progress, all combine to render proper medical assistance from the first, highly desirable.

When an individual suspects the disease to be impending, the first effort should be to excite the free action of the skin. If a warm or vapor bath can be procured, it is highly desirable; if it cannot, the best substitute will be a well-warmed bed, with hot bran bags, or hot bottles, and the free use of warm diluent drinks. A draught, composed of $\frac{1}{2}$ an ounce of sweet spirit of nitre, 1 dram of peregoric, and 15 drops of ipecacuanha, in a wine-glassful of water, may be given every four or five hours. To this draught, 10 grains of the bicarbonate of potash may be added with advantage. Under the

above circumstances, any stimulant diaphoretic may be given with benefit, even a little whiskey, or other spirit, or wine, well-diluted with hot water; these stimuli being used, of course, only at first, and whilst fever is not yet present.

When an attack of acute rheumatism characterized by the symptoms detailed at the commencement of this article, is unequivocally established, if medical assistance is not immediately procurable, the patient must be kept in bed, moderately warm, the thirst quenched by the free use of simple diluent drinks, and the diet reduced to a very low scale, anything like alcoholic stimuli, or animal preparations, being strictly forbidden, except in the cases of very debilitated persons, when animal broths, such as beef-tea, may be permitted in moderation. If fever runs high, tartar emetic, in from $\frac{1}{8}$ to $\frac{1}{4}$ of a grain dose, may be given every four, five, or six hours, and with this, from 6 to 10 drops of laudanum may be combined, to alleviate the pain. Instead of simple laudanum, Dover's powder, in doses of from 10 to 20 grains, may be given. The bowels should be evacuated daily, and for this purpose the saline purgatives, as the sulphate of magnesia (Epsom salts), and the potassio-tartrate of soda (Rochelle salts), are the best. More recently, the treatment of acute rheumatism by lemon-juice has come into practice, and seems in many cases to answer extremely well. This treatment has the advantage of being perfectly safe, and therefore, where the lemon-juice can be procured, may without danger, be pursued in the absence of a medical man. One tablespoonful, or $\frac{1}{2}$ an ounce of lemon-juice, is to be given every four hours. The alkaline treatment of acute rheumatism is followed by some; 15 to 30 grains of bicarbonate, or the same quantity of the acetate, of potash being given, well-diluted in water, every four hours.

As regards the local treatment of the inflamed joints, little is to be done in a disease which shifts its site as rapidly as acute rheumatism, for even if it can be driven from one joint, it must, as long as the poison is in the constitution, show itself elsewhere, it may be in the heart; above all things, leeching the joints, unless under peculiar circumstances, of which a medical man only can judge, is to be avoided; hot bran bags or flannels, saturated with hot water, or a hot solution of common baking-soda, an ounce to a pint of water, or the application of cloths moistened with laudanum or tincture of belladonna, sometimes give relief, but probably the following plan, laid down by Dr. Todd, will be the most advantageous local method of treatment. When the joints are much swollen and painful, much ease may be given by enveloping them in a large quantity of the soft carded cotton—"cotton wool"—over which there is wrapped completely a piece of oiled silk. By this air-tight

covering, the joints are kept in a perfect vapor bath, and when it is removed, after twelve or twenty-four hours, the wool will be found saturated with moisture which is strongly acid. Tincture of iodine, applied to the affected part morning and evening, with a camel's hair brush, and the application of small blisters to the swollen joints, have been highly recommended, and sometimes give great relief. Great attention should be given to nursing a rheumatic fever patient; his bed should be very smoothly and evenly made, all cotton must be avoided, both on bed and patient, and the bed so placed in the room as to make it impossible for draughts of cold air to fall on the sufferer. Care must also be taken to maintain the atmosphere at an even and somewhat elevated temperature.

Strong testimony has quite recently been advanced of the value of salicylic acid, salicylate of soda, and salicine, in the treatment of this disease. In doses of 3 or 4 grains every four hours, especially of the salicylic acid, the temperature and the frequency of the pulse have both been reduced, the dyspnoea and the pain have been materially lessened, and free perspiration prompted. On account of its acidity, the salicylic acid should either be taken in the form of pills, or in combination with an equal quantity of carbonate of soda. Propylamine is another remedy which has been found very successful in the treatment of both acute and chronic cases. The following is a good formula for its use:

Take of Propylamine	Twenty drops.
Pure water.....	Six ounces.
Essence of peppermint.....	Two drams.— <i>Mix.</i>

Give 1 teaspoonful every hour.

Heart complication.—The symptoms of inflamed heart, in the above disease, may come on suddenly—whilst medical aid is hours distant. The patient is seized with palpitation, increased rapidity of pulse, oppression of breathing, and sense of extreme anxiety in the region of the affected organ; pain may or may not be present. Every minute is of consequence. Leeches, if procurable, should be put on over the region of the heart, to the number of twelve or eighteen, according to the condition of the patient, followed by a warm linseed-meal poultice, or, better still, a poultice composed of equal parts of linseed-meal and mustard. Medical aid, if possible, should be promptly procured.

Rheumatic fever, with heart complication, is probably one of the most fertile sources of heart diseases. (See HEART, DISEASES OF THE.)

Great care is necessary during convalescence, both in regard to diet, exercise and exposure. A relapse is frequently the result of negligence in these particulars. Where there is a tendency to recurrence of the symptoms, and the person formerly afflicted has warnings premonitory

of the fever, in the form of slight rheumatic pains in individual joints, which have been exposed to cold and wet, every precaution should be taken, and salicine, salicylic acid, or some alkaline medicine, should be used, by which means the attack may generally be averted. (See SALICINE, SALICYLIC ACID, ALKALI, ETC.)

CHRONIC RHEUMATISM.—*Symptoms*.—By chronic rheumatism, in the proper sense, should be meant a disease somewhat resembling the acute form, accompanied with but slight febrile derangement, if there is fever at all, and affecting one or more of the joints, generally the smaller ones, which continue for a greater or less length of time swollen and tender, the inflammation either subsiding without effect, or after long continuance, causing permanent thickening around the joints, probably with permanent distortion, the process being more or less accompanied with pain. In this form of rheumatism, instead of heat, there is often a sensation of cold around the affected parts.

Treatment.—The chronic nature of this disease must generally place it under proper medical control; the chief efforts of the unprofessional must be to correct any slight deviations from the general health, to protect the affected parts especially from cold, by means of warm clothing, and to use friction, either with simple oil, or by means of the soap and opium liniment. Much comfort is not only derived from friction, but if combined with proper exercise of the joint or joints, it may do much to prevent permanent deformity. In chronic rheumatism, warmth of climate is of much importance, and as much should be done towards the attainment of this as circumstances will permit. Dampness of the weather is never well borne, and climates remarkable for it should be avoided by all rheumatic patients. The Gettysburg mineral spring, the hot springs of Arkansas, and the magnetic springs of Michigan and Wisconsin, are excellent resorts for rheumatic sufferers. (See HEALTH RESORTS.)

Sulphureous vapor, and Turkish baths, have been found of great service when persistently followed up. The chronic form of rheumatism is frequently relieved by the use of the galvanic battery, and also by the local application of coal-oil, or of vaseline, which is an odorless preparation of petroleum. The *Populus Tremuloides*, or American poplar, in doses of a teaspoonful of the powder, two or three times a day, a strong infusion of horse-radish, and a strong tea made from the Virginia snake-root, are popular remedies in many parts, and frequently very successful. Those cases of chronic rheumatism which are characterized by coldness of the parts are very likely to be benefited by the use of the guaiac mixture of the British Pharmacopœia. It may be given in 2 tablespoonful doses every six hours. (See GUAIACUM.)

Salicylic Acid (which see) is often used with much benefit in this form of rheumatism. This is a new remedy.

If the disease, as it sometimes does, assumes an intermittent character, the following will be found very useful:

Take of Sulphate of quinine.....	Twelve grains.
Sulphate of iron.... .	Ten grains.
Dilute sulphuric acid.....	Half a dram.
Pure water.....	Six ounces.— <i>Miz.</i>

Give 2 tablespoonfuls three times a day.

Sometimes the symptoms resemble those of acute rheumatism, and require a similar treatment.

For description and treatment of another of its forms, see LUMBAGO. (See also SCIATICA, NEURALGIA.)

Preventive treatment.—Cold and wet are particularly to be guarded against, and after exposure, the preventive measures already laid down adopted. Flannel or woolen, worn next the skin, must always be regarded as one of the chief preventives; it should, of course, be proportioned in thickness to the season and temperature. Some persons imagine that their liability to rheumatism, either acute or chronic, is increased by flannel; if it is, it is probably because the wool keeps the skin in too excited a state, and by increasing perspiration, increases the risk of suppression; in such cases, woven silk, when it can be afforded, is useful, or spun cotton may be used in winter. Many rheumatic patients find their chief protection in an under-dress of chamois leather. At all events, perfectly warm clothing, and protection against suppressed perspiration, is essential in all such cases. Many of the above precautionary measures apply likewise to chronic rheumatism. Persons of full habit, liable to rheumatic attacks, should eschew malt liquor generally, should take animal food sparingly, and avoid violent exertions which heat the body. Persons of spare or feeble habit may live better, and indeed require to keep up the condition of the body to as good a pitch as possible.

Hereditary predisposition to acute rheumatic affection ought always to be considered by parents in directing or advising upon the future destinations of their children, who ought never to engage in any occupations which may involve much exposure to the vicissitudes of weather, for if they do, they almost certainly become the victims of rheumatic fever, involving long and painful present illness, and in all probability laying the foundation of years of future suffering, and of half-usefulness, from heart disease. Indeed, so serious are the considerations involved in hereditary predisposition to acute rheumatic disease, as to make it a question whether persons thus predisposed would not find it their best

plan to leave a changeable and often damp climate and make their home in one free from such objections; provided, of course, that after the removal, occupations are not engaged in which involve exposure. A visit to some of the mineral springs mentioned above, with proper treatment at the same time, will frequently ward off an attack of rheumatism. (See DAMP, COLD, CLOTHING, CHLOROFORM, SALICYLIC ACID, SALICINE, PETROLEUM, VASELINE; CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF; PROPYLAMINE, COLCHICUM, LEMON, ACUPUNCTURE, NEURALGIA, SCIATICA, LUMBAGO, ETC.)

RHEUMATISM-WEED. (See *CHIMAPHILA UMBELLATA*.)

RHEUM PALMATUM, *re'-um pal-ma'-tum*, or rhubarb. A plant belonging to the Nat. order *Polygonaceæ*. The exact source of the officinal rhubarb has not been definitely ascertained. The medicinal properties of rhubarb are peculiar and valuable. Its most remarkable peculiarity is the union of the cathartic and astringent power, the latter not interfering with the former, as the purgative effect precedes the astringent. From its mildness it is an appropriate laxative in mild cases of diarrhœa, chronic diarrhœas and dysentery, by first evacuating any irritating matter contained in the bowels, and afterwards acting as an astringent. Also in convalescence from exhausting diseases, enfeebled condition of the bowels, dyspepsia, and scrofulous enlargement of the glands. It is one of the best laxatives for general use in infancy, for it is not apt to act with unexpected violence, and its tonic and astringent virtues render it peculiarly fit for the treatment of infantile cases attended with enfeebled digestion and irritation of the alimentary canal, as well as in a variety of children's complaints, as cholera infantum, summer complaints, etc. In nervous and putrid fevers it is preferable to saline and other purgatives. Powdered rhubarb has been recommended as an application to old and indolent ulcers for the purpose of promoting their granulation. The fluid extract is a safe and convenient preparation in most cases where a laxative is indicated.

A combination of rhubarb and senna is prepared, suitable for cases where a simple cathartic is required. By the union of these drugs in the concentrated form of a fluid extract, and in due proportion, a cathartic is obtained which is safe, unattended by unpleasant symptoms, and not followed by constipation. This preparation of rhubarb is peculiarly adapted to those cases where a tendency to constipation exists. "Rhubarb alone is unadvisable in cases of habitual constipation, on account of its subsequent astringent effect."

Some persons habitually carry a piece of the root in their pockets, and cut off small fragments as they think them required. Chewing a small portion after meals, is often beneficial when the person is troubled

with wind on the stomach. Dose: of compound rhubarb pill, 5 to 10 grains; compound rhubarb powder, 20 to 60 grains (for children, 5 to 10 grains); aromatic syrup of rhubarb, 1 to 4 teaspoonfuls (for children, $\frac{1}{2}$ to 1 teaspoonful); tincture of rhubarb, as a stomachic, 1 to 2 teaspoonfuls—as a purgative, 1 to 2 tablespoonfuls; wine of rhubarb, 1 to 2 teaspoonfuls; fluid extract of rhubarb, $\frac{1}{2}$ to 1 teaspoonful; fluid extract of rhubarb and senna, $\frac{1}{2}$ to 1 teaspoonful; solid extract of rhubarb, 2 to 10 grains; infusion of rhubarb, 1 to 2 fluid ounces. (See INFUSION; RHUBARB, GARDEN.)

RHINOPLASTIC OPERATION, *ri-no-plas'-tik*. The operation of restoring a mutilated nose. It is done by paring away the edges of the injured organ, and then cutting a flap of skin from the forehead of sufficient size to make good the mutilation, and adjusting it to the nose by means of sutures.

RHONCUS, *ron'-kus*, is a term employed in auscultation, to denote a rattling or wheezing sound, occasioned either by the passing of the air through fluids in the lungs, or by constriction of the bronchial tubes.

RHUBARB. (See RHEUM PALMATUM.)

RHUBARB, GARDEN, *roo'-barb*. As a cooling article of diet, it is wholesome for most persons, but some cannot take it without suffering after, from stomach disorder, and others who have any tendency to certain urinary disorders, must most strictly avoid it; indeed, if garden rhubarb is too freely indulged in, it may give rise to urinary irritation. (See MALIC ACID, OXALIC ACID, RHEUM PALMATUM.)

RHUS GLABRUM, *rus gla'-brum*, or sumach. A short shrub belonging to the Nat. order *Anacardiaceæ*. It is common to the United States and Canada, and yields an active principle called *rhusine*. The bark and berries are both used. It is astringent and refrigerant, and, to an extent, febrifuge, and has been found valuable in gonorrhœa, leucorrhœa, diarrhœa, dysentery, hectic fever and scrofula. A decoction of the inner bark of the root is serviceable in sore mouth, caused by mercurial salivation, and is much used internally in mercurial diseases. Syphilitic affections are said to be much benefited by a free use of sumach, in combination with the barks of slippery elm and white pine. A poultice of the bark applied to ulcers and gangrenous conditions, claims attention for its antiseptic properties. The infusion, sweetened with honey, is serviceable in the same way, for cleansing the mouth in putrid fevers. It is a cooling drink in ulceration of the throat. Dose: of the fluid extract, 1 to 2 teaspoonfuls; rhusine, 1 to 2 grains; decoction of sumach bark, 1 to 4 fluid ounces; infusion of sumach berries, 1 to 4 fluid ounces; three or four times a day. (See DECOCTION, INFUSION.)

RHUS TOXICODENDRON, *rus' toks-e-ko-den'-drun*, commonly known as poison ivy and poison oak, is a low creeping shrub, belonging to the Nat. order *Anacardiaceæ*. It grows all over the United States and Canada. The fresh juice is powerfully irritant, producing in some persons blistering of the skin, accompanied with a good deal of fever. The emanations from the plant are said to produce the same effect on some constitutions at quite a distance off. The irritation of the skin may be overcome by saline laxatives, and cooling applications to the surface. In doses of from 1 to 5 grains, the powdered leaves are said to produce effects similar to *nux vomica*. (See *STRYCHNOS NUX VOMICA*.)

RIBS, *ribz* [Ang.-Sax. *rib*, *ribb*]. The ribs are the curved bones which inclose the chest and upper part of the abdomen. They are twelve in number on each side. Of these, the first seven on each side are directly connected with the breast-bone, or sternum, and are called the true ribs; the remaining five are called the false ribs; of these, the upper three are indirectly connected with the breast-bone, by means of cartilages attached to the cartilage of the last two ribs; the lowest two are unconnected with the breast-bone, or other ribs in front, and are therefore called floating ribs. The cartilages, by which the seven superior ribs are connected with the breast-bone, and by which the three upper false ribs are connected with the cartilage of the last true rib, are very elastic in early life; as, however, age advances, they become less so, and ultimately are converted into bone. The posterior extremity, or head of the rib, is attached to the spine by means of ligaments, which admit of a certain amount of movement. These ligaments are so strong as completely to resist displacement of the bone by violence; fracture, generally about the angle, taking place instead. (See *FRACTURES*.) The ribs are likewise attached in front to the breast-bone, by means of ligaments, and are connected to each other by short intercostal muscles, which act in the efforts both of inspiration and of expiration. The use of the ribs is to cover and defend the lungs and heart; and their articulations with the vertebræ and sternum admitting of a slight motion, they assist in respiration. (See *ANATOMY, CHEST, FRACTURES*.)

RIBS, BROKEN. (See *FRACTURES*.)

RICE, *rise* [Lat. *oryza*]. This well-known grain is far below most others of the class in actual nutritive power—not yielding more than three or four per cent. of plastic nutriment. Its chief constituent is starch, of which it contains eighty per cent. The property of rice, in tending to confine the bowels, renders it a valuable adjunct to sick cookery, when such an effect is required; in this case, it is most beneficial in the form of ground rice, or of rice-flour. In cases of diarrhœa, or of irritability of the stomach or bowels, rice-water; that is, water

prepared from rice, as barley-water is from barley, is very useful as a drink. It may be flavored with lemon-peel, or any other condiment. If the case is a severe one, the solution of a teaspoonful of isinglass, or gelatine, in every pint of the water, is a useful addition.

Arrack, a spirit used by the Orientals, is made from rice. (See CEREALS.)

RICE WATER. (SEE COOKERY FOR THE SICK.)

RICHES. (See OCCUPATION.)

RICH-WEED. (See BLACK COHOSH.)

RICINUS COMMUNIS, *ris'-e-nus kom'-mu-nis* [Lat. *ricinus*, a tick, which its seed resembles.] The castor-oil plant, or *palma christi*; a native of India, belonging to the Nat. order *Euphorbiaceæ*. Castor-oil is obtained from the seeds, either by expression with or without the aid of heat, or by decoction, or sometimes by the aid of alcohol. It is one of the most certain and the safest of our aperients; in most persons, it acts quickly, without pain, clears the bowels effectually, leaves them with a greater tendency to relaxation than before, and does not require the dose to be increased in consequence of repetition.

On account of its gentle but effectual action, it is most valuable as an aperient, in properly-regulated doses, for persons of weak habit of body. Its certain action, the tendency to relaxation which remains after its employment, and the circumstance that the dose requires rather to be diminished than increased by continued use, render castor-oil peculiarly adapted for those who suffer from habitual constipation. In all conditions of body in which it is desirable to clear the bowels, effectually, but without much disturbance, the oil is invaluable, in pregnancy more particularly. Irritation of the mucus lining of the bowels, whether inflammatory, or in the form of simple diarrhoea, is in many cases more quickly relieved by castor-oil than by any other remedy.

The great objection to castor-oil, its sickly nauseousness, has given rise to a variety of modes of taking it. Floated in brandy and water, barley-water, or some aromatic water, are favorite modes with many; others take it best in hot fluids, tea, coffee, or gruel, the heat getting rid of the feeling of oily consistency so disgusting to some. A piece of orange or lemon-peel, chewed just previous to taking a dose of castor-oil, blunts the acuteness of the nerves of taste. Castor-oil may be taken in emulsion, made with mucilage or milk; but rubbed up with yelk of egg is the best form of mixture. In this way, it is not so active an aperient as when uncombined; but in irritable and inflamed conditions of the lining membrane of the bowels, it is especially valuable when combined with opium. Six teaspoonfuls of castor-oil are to be well triturated in a mortar with the yelk of one egg, and to this, soft water, or some aromatic

distilled water, is to be added gradually, to the extent of 6 ounces. If an aromatic water is not used, a few drops of some essential oil, such as cinnamon, may be added before the water. The mixture resembles custard in consistence. The dose, 1 ounce or 2 tablespoonfuls. The usual dose of castor-oil alone is 1 to 2 tablespoonfuls, for adults; 1 to 3 teaspoonfuls, for infants. (See EGGS, EMULSION.)

RICKETS, OR RACHITIS, *rik'-ets* [Lat. *rachitis*], is a disease of the bones, in which they are of unnatural softness, and become bent under the weight of the superincumbent parts of the body. It is confined to the young, and commonly makes its appearance between the first and third year. As soon as the weight of the body is thrown on the limbs, they become bent and twisted in the most extraordinary manner; the joints become enlarged, the chest and pelvis deformed, and the head large and swollen. The bones in this disease are found to be soft and cellular, and deficient in earthy matter. In addition to this, the muscles are always pale and weak, with other signs of general debility; besides which the brain and organs contained in the chest and abdomen are liable to suffer.

Treatment.—The nature of this disease requires that its treatment be directed chiefly to strengthening the general constitution by a good and well-regulated diet, pure air, warm clothing, bathing or sponging with sea water, and such active exercise as may be borne without fatigue. In addition to these, cod-liver oil, iron, and phosphate of lime should be given; and splints or other mechanical means employed to bring the parts into their natural shape. This treatment, however, can only be properly carried out by a medical man.

RIDING. (See EXERCISE.)

RIGOR, *rig'-ur* [Lat. *rigor*; *rigeo*, to stiffen], is the sudden sensation of cold, accompanied with shaking, or in other words, the shivering which precedes the inflammatory stage of many acute diseases. It is probably a nervous affection, for it occurs likewise in many states of the body in which there is neither fever nor inflammation. It is a common symptom of the presence of bile on the stomach; it is a concomitant on the passage of gall-stone or of gravel; it often occurs at the commencement of labor, and may even be caused in a slight degree by certain sounds. (See SHIVERING.)

RING, FIXED. (See FINGERS.)

RINGING IN THE EARS. (See EAR, DISEASES OF THE.)

RINGWORM, *ring'-wurm*. The real nature of this very troublesome affection of the skin has been the subject of much dispute. It is now ascertained to be dependent upon the presence of a definite parasitic growth, which splits up and destroys the hair follicles.

Symptoms.—The most usual site of the disease is the scalp, but it is apt to appear on, or extend to, the forehead, the neck, the arms, and hands. Generally, the first indications of the presence of ringworm are the falling or breaking off of the hair, which leaves a bald, generally circular, patch, and the itching which accompanies the disorder. If examined at this time, the patch will be found scurfy, slightly red, with the irregularly-broken hairs protruding. If the disease be unchecked by treatment, it goes on extending, until at last it involves almost the entire scalp. The hair, which is not detached, on the affected parts, becomes lighter in color, and woolly in character. If pustules form, the discharge from them dries upon the surface in the form of scurfy scabs, or in crusts. That the disease is highly contagious, there can be no question; it is frequently, too, extended to different portions of the same head, by combs, brushes, etc., or by the nails, which children are apt to use freely on account of the itching.

Treatment.—Few diseases give more trouble or vexation in the management than ringworm, for it often resists for months the best directed treatment, and that which succeeds admirably in one case often fails to make any impression in another.

The late Dr. Thomson says: "The application which I have found most beneficial is a solution of 1 dram of nitrate of silver in $\frac{1}{2}$ ounce of dilute nitric acid. The diseased circles, after the scalp has been shaved, should be pencilled over with the solution, and in ten or fifteen minutes afterwards, the parts should be well-sponged, first with tepid water, and then covered with pledgets of lint dipped in cold water, and the evaporation diminished, by covering the wet lint with oiled silk."

Another high authority in skin diseases lays more stress than many others on the constitutional treatment in this affection. He remarks: "Improper food is a frequent predisposing cause, and one of the common causes in schools. I have seen it in children fed too exclusively on a vegetable diet." For these, and similar reasons, he advocates particular attention to clothing, ventilation, exercise, and to the nutrition, aided by tonic medicines, such as iron, quinine, and mineral acids. With regard to external remedies, after irritation has been subdued, the same author remarks: "An ointment which I have found of great service, is one composed of 1 dram of sulphate of zinc to 1 ounce of simple cerate." Sulphate of zinc in lotion may also be used. "It is beneficial to wash the head with soap once a day, and when dried to anoint it with pomatum; keeping the scalp constantly moistened with some oleaginous matter, is an important adjunct to cure."

An application made by dissolving 1 dram of powdered borax in 1 ounce of vinegar is said often to prove of service. A lotion formed by

adding 2 ounces of the saturated solution of sulphurous acid gas to 6 ounces of water, makes an effectual application in this troublesome disease. The tarry oil, which distils from the end of a piece of coarse brown paper, when rolled up in the form of a match and lighted, is said, if allowed to drop upon the diseased patch, to effect a cure when other means have failed.

When ringworm is present, the hair should either be cut very short, or the scalp shaved. An oil-silk cap is frequently recommended to be worn, but one of linen is preferable, being less heating and exciting to the skin.

ROARING IN THE EARS. (See EAR, DISEASES OF THE.)

ROASTING, *roste'-ing*. Literally, roasting means cooking without water or other fluid, by exposure to heat, before a fire, but the term as used, more generally implies cooking in an oven. The old method of roasting meat before the fire renders the meat more juicy, palatable and digestible than the modern mode of baking in a confined oven: but meat cooked in the improved ventilating ovens has all the sapidity and digestibility that is obtained by the original means of roasting. In Great Britain, cooking in confined ovens is always termed baking.

During roasting, the watery portions of the meat evaporate, and much fat is melted out, at the same time, the coagulation of the albumen, the usual result of heat on animal food, takes place. The loss of fat in roasting renders meat thus cooked more digestible. It retains, moreover, the gelatine, which is greatly dissolved out in the process of boiling. If, however, the cooking is carried too far, the meat overdone, its nutritious properties are impaired. On the other hand, if meat is underdone, although more nutritious, it is certainly less digestible. (See BOILING, BROILING, EMPYREUMA, ETC.)

ROBINIA PSEUDO-ACACIA, *ro-bin'-e-a su'-do-a-ka'-she-a*, or locust tree, a tree belonging to the Nat. order *Leguminosæ*. It is also known by the names of black locust, and yellow locust. It is found principally in the Middle States. The bark and the leaves are the parts used in medicine, the bark of the root being the most active. It is tonic in small doses, emetic and purgative in large ones. An ounce of the bark boiled in $\frac{3}{4}$ of a pint of water, operates as a cathartic, in doses of 1 ounce morning and evening.

ROCHELLE-SALT, *ro-shel'-salt*. Tartrate of soda and potash. (See POTASH.)

ROCK ROSE. (See HELIANTHEMUM CANADENSE.)

ROOTS, COLLECTION AND PRESERVATION OF. (See PLANTS.)

ROSA, *ro'-za*, [Gr. *rhodon*, a rose]. The rose, a genus of the Nat. order *Rosaceæ*. The species and varieties are well-known for the beauty and fragrance of their flowers. The fruits, commonly called hips, are employed in medicine for their refrigerant and astringent properties. It is chiefly used as a confection and a pill basis. The confection is prepared by beating to a pulp, in a stone mortar, and rubbing through a sieve 1 pound of hips, deprived of their seeds, adding 2 pounds of refined sugar, and mixing thoroughly. Dose, 1 teaspoonful or more. The dried petals of the unexpanded flowers of *R. gallica*, constitute the red-rose leaves, kept at drug stores; these are used medicinally as mild astringents and tonics. Rose-water is prepared by distilling the fresh petals of *R. centifolia* with water.

ROSE. (See ROSA.)

ROSE, *roze*. An old popular name for erysipelas. (See ERYSIPELAS.)

ROSEBAY. (See EPILOBIUM ANGUSTIFOLIUM.)

ROSE-COLD. (See HAY ASTHMA.)

ROSEMARY. (See ROSMARINUS OFFICINALIS.)

ROSEOLA, OR ROSE-RASH. (See SKIN, DISEASES OF THE.)

ROSE PINK. (See SABBATIA ANGULARIS.)

ROSE-RASH. (See SKIN, DISEASES OF THE.)

ROSin. (See RESIN OR ROSIN.)

ROSin WEED. (See SILPHIUM GUMMIFERUM.)

ROSMARINUS OFFICINALIS, *roz-ma-ri'-nus of-fis-e-na'-lis*, or rosemary, is chiefly used on account of its fragrant volatile oil, which is stimulant and antispasmodic. The oil may be added to liniments, as a fragrant stimulant addition to these applications. Dose of the oil, internally, from 3 to 6 drops.

ROTTLERA TINCTORIA, *rot'-tl-rq tink-to'-re-a*, kamela, or kameela, a dark-red mealy powder, mixed with the hairy spiculæ brushed from the outer surface of the capsules of an East Indian tree, belonging to the Nat. order *Euphorbiaceæ*. It has obtained some notoriety as a remedy for tape-worm, and there is no doubt that in doses of from 2 drams to $\frac{1}{2}$ ounce, it will frequently expel that troublesome parasite. It is sometimes given in tincture, of which the dose is $\frac{1}{2}$ ounce. Although much has been said in its favor, it is generally esteemed inferior in its effects to the oil of male fern. Kamela applied on moistened lint is said to be an effectual remedy in herpes and other allied eruptions.

ROUGE, *roozh* [Fr.], a pigment formerly much used for painting the cheeks; it was commonly prepared from the dye called safflower.

ROUND SHOULDERS. (See CHEST; SPINE, DISEASES ETC., OF THE.)

ROWING. (See EXERCISE.)

RUBBING. (See FRICTION, RHEUMATISM.)

RUBEFACIENT, *ru-be-fa'-shent* [Lat. *rubefacio*, to make red], an application which reddens the skin. (See COUNTER-IRRITATION.)

RUBEOLA, OR MEASLES. (See MEASLES.)

RUBIA TINCTORUM, *ru'-be-q tingk-to'-run* [Lat. *ruber*, red], or madder, a plant belonging to the Nat. order *Rubiaceæ*. This species yields the important dye-stuff called madder, which is also used in medicine as a tonic. It is supposed to promote the menstrual and urinary discharges. Dose, 30 grains, three or four times a day.

RUBUS, *ru'-bus*, a genus of plants belonging to the Nat. order *Rosaceæ*. The *rubus villosus*, or blackberry, the *rubus strigosus*, or red raspberry, and the *rubus trivialis*, or low blackberry, are all natives of the United States and Canada, and all possess similar medicinal properties. The bark of the roots of the blackberry and low blackberry, and the leaves of the raspberry, are the parts used. They are tonic and astringent, and are excellent remedies in diarrhœa, dysentery, cholera infantum, chronic diarrhœa, hemorrhage from the stomach and bowels, etc. Blackberry is said to exert an influence over the uterus during parturition when other remedies have failed. Dose: of the decoction or infusion of these plants, from 1 to 4 fluid ounces, several times a day. (See DECOCTION, INFUSION.) Dose: of the fluid extract of blackberry, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract of blackberry, 4 to 6 grains.

RUE. (See RUTA GRAVEOLENS.)

RULE, LIVING BY, *rool* [Lat. *regula*, a straight piece of wood, a rule, a pattern.] There are few departments of practical medicine which have been carried out to a more mischievous extent of refinement than that which is noticed in this article. Mischievous, because an important principle has been overlooked, in the prescription or following out of petty detail. That principle is, that there is nothing more likely either to create or to keep up disorder in any part of the organs of the body, which usually act independent of the will, than continued, especially anxious attention, directed to them whilst in active operation. It is unquestionable, that in some diseases, such as diabetes, dysentery, etc., the strictest regulation of diet and regimen is absolutely necessary; neither can it be doubted that in most ailments, even in those of a trivial character, some general regulations as to living are required; it is not against such as these that these remarks are directed, but against the absurd "living by rule," the worse than useless clock-work regulation of every action of daily life, eating, sleeping, walking, etc., which many dyspeptic and hypochondriac patients either adopt for themselves or are advised into. In such cases, instead of a wholesomely varied diet, the nature of the food is confined within an unwholesomely narrow compass, and its amount, if not weighed physically, is at least so mentally, by the

trammelled invalid, who trembles lest, inadvertently, half an ounce more than the prescribed quantity should find its way into his stomach, and then, after his meal, disturbs the digestive process, by thinking how it is going on, and by directing his attention to the sensations of his stomach, which is petted, and considered, and allowed to choose its own work, and mode of working, till, of itself, it nauseates the uniformity of too regulated a diet, and sours even to mutton of the tenderest, and to the most unexceptionable brown bread. At last, forcing its miserable possessor to the conclusion that he is yet over-taxing its powers, the animal diet is perhaps eschewed, and farinaceous foods of different kinds are resorted to, as more digestible by the "very weak stomach." As already remarked, rules of life, and stringent ones, too, must often be laid down by medical men, for persons laboring under serious disease, nor can they be too strictly attended to, but these cases are abundantly different from that numerous class of nervous and dyspeptic complaints, which are fostered by the too close attention to health, by the "living by rule," the weighing and measuring, and considering every morsel of food, and every action of the body or mind. The stomach, and other organs, too, must, in part at least, be brought up to their work by observation of the rules of health generally; the endeavor to bring the work down to the organs is worse than useless. (See FOOD, DIET, DIGESTION, EXERCISE, HEALTH, REGIMEN, ETC.)

RUM, *rum* [Fr. *rhum*, *rum*], this well-known spirit is distilled from the products of the sugar cane; when genuine, it contains about fifty-three per cent. of alcohol. New rum is apt to contain lead, dissolved off the leaden worm of the still in which it is made. When this is the case, the rum is of course unwholesome, and may give rise to symptoms of colic; but after the liquor has been permitted to stand some time in casks of oak wood, it becomes freed from the lead, which forms an insoluble compound with the tannin of the oak, and falls to the bottom. Rum has been a favorite domestic remedy in cases of incipient cold. It possesses, probably, no advantage over other stimulants, and in such cases, the use of an alcoholic stimulant at all may do harm. (See ALCOHOL.)

RUMEX, *ru'-meks*, or dock, a plant belonging to the Nat. order *Polygonaceæ*. There are several varieties of the dock family used in Medicine, namely: *Rumex Aquaticus*, or great water dock, *Rumex Britannica*, or yellow-rooted water dock, *Rumex Obtusifolius*, or blunt-leaved dock, and the *Rumex Crispus*, or yellow dock. They possess similar properties, but the latter is the one most commonly used. They are all common in various parts of the United States. Dock is astringent and gently tonic, and is supposed to possess an alterative property. It is said to have proved useful in scrofula and syphilis. The extract is

astrigent, alterative, and tonic, uniting a laxative power with these, and resembling rhubarb in its mode of operation. It is considered eminently useful in scurvy, scrofulous, cancerous, and syphilitic affections, leprosy, etc. An ointment of yellow dock and root-bark of the false bittersweet is confidently affirmed by others, to form an infallible remedy for the itch. Immediate effects must not be expected to follow the use of this agent. Yellow dock contains a principle called *rumicin*. Dose: of the decoction of these plants, 2 to 4 fluid ounces (see DECOCTION); fluid extract of yellow dock, 1 to 2 teaspoonfuls; solid extract, 4 to 8 grains; rumicin, 4 to 8 grains; to be taken three or four times a day.

RUMINATION, *ru-me-na'-shun* [Lat. *ruminatio*, a thinking over]. A voluntary regurgitation of food for further mastication, peculiar to the ox, sheep, and other animals having several stomachs; is commonly called chewing the cud.

RUNNING. (See EXERCISE.)

RUNROUND. (See WHITLOW.)

RUPTURE, HERNIA, *rupt'-yur* [Lat. *rumpo*, to break]. Hernia signifies the protrusion of any organ from its natural cavity, but is a term generally used in reference to the intestines. Packed together loosely as the bowels are, and being surrounded on all sides by strong muscular structures, they must be ever subject to more or less pressure, especially during violent exertion of the body, such as lifting heavy weights. The bowels being thus pressed upon at one point, must in time make pressure upon some other part of the abdominal walls, and portions of them escape through those regions of the abdomen which are naturally weak. Thus, hernial protrusions are frequent at the navel, and in one or other groin. A rupture in the groin is termed *bubonocoele*. In some cases the abdominal walls have been previously weakened by disease or injury, such as wounds, abscesses, or distension from within. The structures from which the bowels receive the most pressure are the diaphragm or midriff from above, and the abdominal muscles in front; the former descending with every act of inspiration, and the latter contracting in assisting in the expiratory process.

Ruptures are divided into three kinds:—First, the *reducible*, or that which will return into the abdomen of itself, or can be put back by a little gentle pressure and manipulation, technically called the *taxis*. The second form is the *irreducible* hernia, or that which cannot be returned into the abdomen,—always remaining down and never going back; but the cavity of the bowel still remains free, and the circulation of the blood in its vessels has not been arrested. The last kind of rupture is by far the most important, as being very dangerous to life; it is called *strangulated* hernia. Like the previous form, it never recedes

into the abdominal cavity; but it differs from irreducible hernia in the passage of the bowel being blocked up, the constriction allowing no fæces to pass, and effectually preventing the circulation of the blood beyond its grasp. This state of things soon ends in inflammation and gangrene, if the bowel be not set free.

Ruptures are also divided into *inguinal*, so called because the protrusion takes place through the inguinal canal; and *femoral*, because the protrusion is through the femoral ring. The former is most common in males, and the tumor appears above the fold of the groin; and the latter in females, and the tumor appears below the fold of the groin. When the protrusion extends into the scrotum or bag containing the testicles; it is known as the *scrotal* hernia, and when through the navel as *umbilical*.

REDUCIBLE HERNIA.—When a portion of the intestine escapes from the abdominal cavity, a soft, rounded, compressible, elastic tumor is suddenly formed at some part of the abdominal parietes, growing larger as the patient coughs, or when he is in the upright position, but decreasing in size and almost disappearing on his assuming the horizontal posture. Flatulent noises are heard in such tumors, and they return into the abdomen with a kind of gurgling.

Treatment.—There are two plans of treatment to be tried, one the palliative, consisting in the application and constant use of a truss; the other, the radical cure, for which a surgeon who has made this subject his special study, must be consulted.

IRREDUCIBLE HERNIA is that form in which the bowel cannot be returned, its cavity remaining clear, and its contents passing freely; the circulation of the blood through the tumor is not arrested. This kind of rupture gives rise to many disagreeable symptoms, such as constipation, dragging pains in the stomach, and vomiting; and the misplaced bowel is in constant danger of becoming strangulated.

Treatment.—The only treatment which is applicable, consists of supporting the tumor, and preventing its increasing in size by the application of a bag truss.

STRANGULATED HERNIA.—In this form the bowel is irreducible, its passage occluded, and the circulation in its vessels stopped. We soon have all the symptoms of intestinal obstruction presenting themselves, and these are followed in a very short time by those of abdominal inflammation. There are flatulent pains in the belly, obstinate constipation of the bowels, and vomiting of biliary and mucous matters. As time advances, so the disease increases in severity. The abdomen becomes distended; there is intense pain and tenderness on pressure; the vomiting becomes stercoraceous; the countenance is

expressive of intense anxiety; the features shrink, and are bathed in cold perspiration; and the patient is restless, his pulse being weak, quick, feeble, and irregular. Prostration grows extreme; the sufferer lies on his back, with his knees drawn up; the sphincters relax, and feces pass involuntarily; sores cover his lips and teeth; and death soon terminates the miserable scene.

Treatment.—The principle guiding us in the treatment of strangulated hernia is, to relieve the constriction and return the intestine. The passage which was previously occluded being thus again set free, and the circulation which was just now arrested being again started off, the patient is soon freed from danger, if the disease had not previously made too great advance. In all cases, the assistance of an experienced surgeon is necessary at the very outset, and he will first try to reduce the strangulated bowel by gentle manipulation with his hands, having previously emptied the patient's bladder, and put him under the influence of chloroform. Should the taxis be unsuccessful, an operation will be necessary, and should be early performed before the strangulated intestine has become inflamed and gangrenous.

The time to treat this affection is, when it first appears in the reducible form; the truss should be constantly worn by day, and if the patient will not wear it at night, it should be applied in the morning before he rises.

Not only has this affection been subdivided according to the actual condition of the hernial tumor, but several forms have been separately described according to the place at which the bowel leaves the abdominal cavity; of these, only one needs to be considered in a work written for general family use.

UMBILICAL HERNIA.—When the hernial protrusion is situated in the region of the navel it receives the above name; this form is most common in infants, but is frequently met with in women who have borne many children.

Treatment.—The rupture must be reduced, and kept back by a pad placed over it, and bound in that position by a bandage or elastic belt, the pad being made of ivory, india-rubber, or cork. Hernial protrusions appearing in other positions must be treated on the same general plan, viz., by reducing them and keeping them back by some form of truss.

RUPTURE OF THE BLADDER. (See **BLADDER, DISEASES OF THE.**)

UTA GRAVEOLENS, *ru'-ta gràv-e'-o-lens*, or rue, an herb belonging to the Nat. order *Rutaceæ*. The leaves are usually employed. They are emmenagogue, anthelmintic, and antispasmodic. This agent has

been successfully employed in flatulency, colic, hysteria, epilepsy, many nervous disorders, and nervous disturbances caused by worms. It should be administered in every form with caution. In large quantities, it operates as a poison. If administered during pregnancy, it is very liable to produce abortion. In moderate doses, this agent proves an emmenagogue, while in large doses, it determines irritation of the uterus. Dose: of the fluid extract, 20 to 40 drops; of the solid extract, 2 to 4 grains; of the oil, 2 to 6 drops; of the infusion, 1 to 2 fluid ounces; of the decoction, 1 to 2 fluid ounces. (See INFUSION, DECOCTION.)

RYE, *ri* [Ang.-Sax. *ryge*, *rige*]. This hardy grain possesses a nutritive power about equal to that of barley. It has slight aperient properties. The chief point of interest connected with this grain is the peculiar diseased or fungus growth—the ergot of rye—which is apt to be developed upon the seed. (See RYE, ERGOT OF; CEREALS.)

RYE, ERGOT OF. (See SECALE CORNUTUM.)

S.

SABADILLA. (See ASAGRÆA.)

SABBATIA ANGULARIS, *sab-ba'-she-a an-gu-la'-ris*, or red centaury, a perennial plant belonging to the Nat. order *Gentianaceæ*. It is also known as rose pink, and is common in various parts of the United States. It is an excellent, pure, bitter tonic, without astringency, and is employed in periodic febrile diseases, both as a preventive and a remedy. It is also useful in dyspepsia and convalescence from fevers; but principally to invigorate the stomach and alimentary canal. The warm infusion has received considerable notoriety as a domestic remedy for worms, and for restoring the menstrual secretions. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 1 to 2 teaspoonfuls; of the powder, $\frac{1}{2}$ to 1 dram; of the infusion, 4 fluid ounces, every two or three hours. (See INFUSION.)

SACCHARUM, *sak'-ka-rum*. Latin for sugar. (See SUGAR.)

SACCHARUM LACTIS, *sak'-ka-rum lak'-tis*, sugar of milk, is a crystallized sugar obtained from the whey of cow's milk by evaporation. It is chiefly used as a vehicle for medicinal powders, but is also recommended for consumptive patients and for infants; a solution of this mixed with cow's milk being said to form an excellent substitute for that of the mother.

SACRUM, OS, *sa'-krum* [Lat. sacred bone], so called probably from

being offered in sacrifices by the ancients], is the bone which forms the basis of the vertebral column. (See PELVIS.)

SADNESS. (See MELANCHOLY, HYPOCHONDRIASIS, HABIT, DYSPEPSIA, HEALTH.)

SAFFRON. (See CROCUS SATIVUS.)

SAGE. (See SALVIA OFFICINALIS.)

SAGO, *sa'-go*. This well-known dietetic article is the produce of various species of palm-tree, being obtained from the cellular substance contained within the stems of that tribe of plants. The remarks made upon the nutritive properties and dietetic uses of arrowroot, apply equally to sago. (See ARROWROOT, COOKERY FOR THE SICK, STARCH, ETC.)

SAINT ANTHONY'S FIRE. (See ERYSIPELAS.)

SAINT IGNATIUS' BEAN. (See STRYCHNOS IGNATI.)

SAINT JOHNSWORT. (See HYPERICUM PERFORATUM.)

SAINT VITUS'S DANCE, OR CHOREA, *ko-re'-a* [Lat.], is the name of a disease characterized by convulsive motions of the limbs, as of a person dancing. It is common to both sexes, but it is more common with females, and rarely attacks before the age of eight, or after that of sixteen years.

Causes.—It is often the result of a depraved state of the bowels, of constipation, or of the presence of worms; in females, it is not unfrequently connected with the menstrual function, especially if it be delayed, or imperfect. It is frequently the result of fright. The irritation of the coming of the second teeth has been assigned as a cause; and there is no doubt that imitation, especially among females, may spread the disease, which is most general, as might be expected, in persons of a nervous tendency; and it is said, those with dark hair and eyes are more liable to it than those of a blonde complexion.

Symptoms.—This disease is marked by irregular, involuntary and convulsive movements of various parts of the body, beginning in the face and arms; the features assume an absent look, various small muscles of the face are in constant action, the mouth is opened and shut alternately, and the patient has the look of one who is making faces at you; she speaks in a hurried and disjointed manner, and articulates with difficulty. When asked to put out her tongue, there is some hesitation, then it is quickly thrust out, and as suddenly withdrawn, the teeth often closing with a distinct snap. Both sides of the body may be affected, but usually one side suffers more than the other; the hands and arms are moved about in various hideous ways; as the patient lifts her food to her mouth her arm makes a sudden start, and her object is defeated. Alternating movements are frequently noticed, the back of the hand is first placed upon the lap, the hand is then turned round, and

the palm placed downwards; and these kinds of movements take place sometimes with marvellous rapidity; the feet are shuffled upon the floor, and she writhes and contorts her shoulders.

Treatment.—Dr. Watson says that when pain in the head exists, he finds benefit from the moderate abstraction of blood by leeches, and if persistent pain does exist, the application of four or five leeches might be had recourse to, if the individual is of full florid habit. In any case, no harm, but almost certain benefit, will result from acting on the bowels freely—more moderately, of course, in a weak subject than in a strong one. For this purpose, the compound colocynth pill, for two or three doses in succession, will be of service, or compound decoction of aloes draught may be given. After the bowels have been well cleared, if the patient be weak and pallid, iron will be required. The red carbonate of iron has been found extremely useful in large doses, from 1 dram upwards, given twice or three times a day; other preparations of iron, however, may be given, or quinine, in doses of from one to three grains, dissolved in tincture of iron. Arsenic is a remedy which, when properly used, is found very useful in the treatment of chorea. It is best given in the form of Fowler's solution, 3 to 5 drops, three times a day, *after* eating. The shower-bath is often serviceable in this disease, but for some individuals the shock is too powerful, and seems rather to increase the disease; for such, the douche down the spine may be substituted, or sponging with salt water. In cases of delicate children, the water should, for a time at least, be used tepid. Speedy relief is often obtained by the daily application of ether spray, for five minutes at a time, over the spine. When painful dentition exists, the state of the teeth must be carefully attended to. Extraction of one or more of the first teeth, to make room for the second, will probably be required. When worms exist in the bowels, then such means are to be employed as will be found detailed in the article WORMS. It is in many cases necessary to employ sedatives in order to diminish the movements. Those most to be recommended are cannabis Indica, the Indian hemp, the bromide of potassium and chloral hydrate. For doses and administration, see articles CANNABIS, POTASSIUM, CHLORAL. The diet in cases of chorea should be light, all articles of food likely to disagree being strictly prohibited. The patient, moreover, should be carefully protected from any violent emotions, kept as tranquil as possible, and permitted to enjoy moderate exercise, when the weather is fine, in the open air. The proper ventilation of the sleeping-apartments of such patients must be scrupulously attended to. (See DANCING MANIA.)

SALADS, *sal'-adz* [Fr. *salade*], generally, being composed of raw

vegetables, are unsuited for persons of weak digestion, though they may often be tolerated by the addition of salad oil; when, however, the stomach is capable of digesting them, the general effect on the system appears to be beneficial.

SAL-AMMONIAC. (See AMMONIA.)

SALERATUS, *sal-e-ra'-tus* [Lat. *sal*, salt, and *aer*, air], bicarbonate of potash. (See POTASH.)

SALICINE, *sal'-e-sin* [Lat. *salix*, a willow], is a peculiar bitter crystallizable principle, obtained from the bark of the willow, or of the poplar. Salicine possesses tonic properties in an eminent degree. It has been employed as a substitute for the alkaloids of the Peruvian barks, particularly in ague, and has attracted much attention from its asserted efficacy in the cure of this complaint. It is applicable in cases in which quinine is inadmissible, being less likely to heat, or to cause headache. It is also very useful in rheumatism. The dose, as a tonic, is 1 to 2 grains, three or four times a day; in fever and ague (intermittent fever), 2 to 8 grains, and repeated, so that from 20 to 40 grains may be taken daily, or between the paroxysms of the intermittents; in rheumatism, 5 grains, every four hours. If a stimulant be required, it may be taken in a little sherry. The infusion of the willow bark is often used in the absence of salicine. (See QUININE, SALICYLIC ACID, SALIX ALBA, RHEUMATISM.)

SALICYLIC ACID, *sal-e-sil'-ik*, an acid formed in the laboratory by oxidizing salicilous acid, and by heating salicine with an excess of potash. When pure, it is a white crystalline powder, free from odor, and having an astringent taste. It is one of the most powerful anti-septic agents known, and has, to some extent, replaced carbolic acid in the surgical treatment of wounds.

It has recently been introduced into practice as a remedy for *rheumatism*, *diphtheria*, *scarlet fever*, and *cystitis*. In doses of 5 grains, every six hours, it certainly exercises a marked control in both acute and chronic rheumatism; and in the same doses, every three hours, the throat symptoms and fever in scarlet fever and diphtheria rapidly abate. It is best given suspended in mucilage. The following is a good form for use in these cases:

Take of Salicylic acid.....	One or two drams.
Simple syrup.....	Four drams.
Mucilage of tragacanth.....	One ounce.
Tincture of orange peel.....	Four drams.
Water sufficient to make.....	Six ounces.— <i>Mix.</i>

Give a dessertspoonful every two or three hours.

The salts of salicylic acid have not as yet proved equal to the acid itself as therapeutic agents. (See SALIX ALBA, SALICINE, RHEUMATISM.)

SALINES, *sa-linze'* [Lat. *salina*; *sal*, salt]. Salines are better illustrated by their many well-known examples, such as common salt, potash, soda, Epsom salts, etc., than by any description. (See EPSOM SALTS, POTASH, SALT, SODA, ETC.)

SALIVA, OR **SPITTLE**, *sa-li'-va* [Lat., from *sal*, salt], is the fluid by which the mouth and tongue are constantly moistened in their natural state, and which is supplied by glands which form it, called the salivary glands. There are three pairs of salivary glands—the parotid, the sub-maxillary, and the sublingual. The saliva itself has neither color nor smell, and is tasteless. It is supposed that about ten ounces are secreted in twelve hours. Its uses are to augment the taste of food by the evolutions of sapid matter; to mix with, dissolve, and resolve into its principles, the food during mastication, so as to change it into a pulraceous mass fit to be swallowed; to moderate thirst, by moistening the cavity of the mouth and fauces. In the healthy state, it consists of at least four-fifths of water, having besides, mucilage, albumen, muriate of soda, phosphate of lime, and phosphate of ammonia. (See DIGESTION, MASTICATION, TEETH, ETC.)

SALIVATION, OR **PTYALISM**, *sal-e-va'-shun* [Gr. *ptualizo*, I spit frequently], denotes an increased and involuntary flow of the saliva. This may be caused in a variety of ways, as by the use of certain medicines, by strong mental emotions, etc.; and it is also symptomatic of various diseases of the mouth and neighboring parts, as in dentition, scarlatina, small-pox, etc. Mercury is by far the most common agent in the production of salivation. The quantity required to produce salivation differs in different persons, and consequently its effects require to be watched to prevent excessive action. It acts whether used externally or internally, and generally after a short time, and even with a small quantity. At first, the mouth feels uncommonly hot, with a coppery or metallic taste; the flow of saliva is much increased, the breath becomes foetid, the gums red and tender, and at length the whole mouth, tongue and throat become sore and swollen; and ulcers and sloughs quickly form on the mucous membrane. In the treatment of mercurial salivation, a nutritive diet, pure air, and mild purgatives are required. Cold is to be particularly guarded against, as well as the other extreme of heat. Gargles of chlorate of soda or lime, or of chlorate of potash, are useful in cleansing the mouth and correcting the fetor of the breath. (See MERCURY, CHLORATE OF POTASH, SMILAX, ETC.)

SALIX ALBA, *sa'-liks al'-ba*, or white willow, a tree belonging to the Nat. order *Salicaceæ*. It is a native of Europe, but has for many years been an inhabitant of the western hemisphere. The bark is the part used in medicine. It yields a bitter principle called *salicine*.

Willow bark is tonic, antiperiodic and astringent. It has been used successfully in ague, and in dyspepsia, dependent on weakness of the digestive organs. In chronic diarrhœa and dysentery, it is a very eligible remedy. Dose: of the powdered bark, 1 teaspoonful; of the decoction, 1 to 2 fluid ounces. (See SALICINE, SALICYLIC ACID, DECOCTION.)

SALMON, *sam'-un* [Lat. *salmo*]. Like the other oily fishes, is less digestible than white fish generally, for persons of weak stomach. It is apt to prove highly injurious, if eaten in a state of decomposition. (See FOOD, POISONS AND THEIR ANTIDOTES.)

SAL-PRUNELLA, *sal-pru-nel'-la*, is salt-petre, or nitrate of potash, which has been fused by heat, and cast in a mould, generally of a globular form. The preparation is used by some persons in incipient sore throat or sore mouth, with advantage; the ball of the salt being allowed to dissolve gradually in the mouth.

SALT, *sault* [Lat. *sal*], or chloride of sodium. Common salt is a compound of soda and muriatic acid, or in another view, of chlorine and sodium and water. It is, therefore, either a muriate of soda, or a chloride of sodium with water. Indeed, common salt, is one great source whence the soda of commerce, now so cheap, and so extensively used, is obtained.

Salt unquestionably assists, and renders more perfect the process of digestion, moreover, it forms one of the constituents of the blood, and of the body generally. If salt be denied, the digestion is weakened; the general tone and nourishment of the body are impaired, and it is observed, that worms are more likely to be generated in the intestines. Salt, therefore, ought to be an addition to the food of all, and attention should be paid to children in this respect.

Salted Meats.—It is, however, a very different thing, to eat salt with food, and to live upon meat or fish, which has been salted. In the latter case, it is well ascertained, that certain chemical effects are exerted upon the meat and its nutrient constituents, by the salt, which modify considerably the nutriment afforded to the body. Indeed, the effects of a continued diet of salted meat are most injurious. (See SCURVY.) The exclusive and continued use of salted provisions is here alluded to, not their moderate occasional employment. Salt may almost be regarded as medicinal in some cases of convalescence, in which the craving for it becomes intense. It should be allowed. It appears to act as a tonic. From 1 to 2 ounces of salt dissolved in $\frac{1}{2}$ a pint of water, forms a good, and not unfrequent domestic emetic. It may, however, purge, instead of causing vomiting. It is used in the form of injection, to destroy worms. The occasional use of salt in the treatment of typhus fever, and of cholera, etc., does not require notice here. Externally,

salt is used in solution, generally as in sea or salt-water cold bathing, in which cases it seems to exert a tonic effect; warm saline bathing is efficacious in rheumatism. For local bathing after injuries, such as sprains, etc., the salt-water douche is well adapted to give strength. For the above purposes, 1 pound of salt dissolved in 3 gallons of water, is a good average strength. (See SALINES, CONDIMENTS, ETC.)

SALT-BAG. A flannel bag containing hot, dry salt, is a useful application in chronic rheumatism and neuralgia.

SALTED MEATS. (See SALT.)

SALT OF LEMONS. (See OXALIC ACID.)

SALT-PETRE, OR NITRATE OF POTASH. (See POTASH, SAL-PRUNELLA.)

SALT-RHEUM. (See PSORIASIS.)

SALT-RHEUM WEED. (See CHELONE GLABRA.)

SALTS. (See SALINES.)

SALTS, EPSOM. (See EPSOM SALTS.)

SALVE, *säv* or *sälv* [Lat. *salvus*, safe]. A common name for an ointment. (See OINTMENT.)

SALVIA OFFICINALIS, *sal'-ve-a of-fis-e-na'-lis*, or sage. An herb, native to Europe, but naturalized in this country, belonging to the Nat. order *Lamiaceæ*. Sage unites a slight degree of tonic power and astringency with aromatic properties. It is beneficial in flatulence, connected with gastric debility, efficacious in restraining the exhausting sweats of hectic fever, or to allay nausea. The infusion is an excellent worm remedy, and is useful as a gargle for inflammation and ulceration of the throat, and relaxed uvula. It has achieved considerable notoriety in spermatorrhœa, and as an antaphrodisiac. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; powdered leaves, 20 to 30 grains; infusion, 2 to 4 fluid ounces, three or four times a day. (See INFUSION.)

SAL-VOLATILE. (See AMMONIA.)

SAMBUCUS CANADENSIS, *sam-bu'-kus kan-a-den'-sis*, or the common elder-tree, a native of the United States and Canada, belonging to the Nat. order *Caprifoliaceæ*. The flowers, bark, and berries, are the parts used in medicine. The expressed juice of the latter, evaporated to a syrup, in doses of 1 fluid ounce, is a valuable cathartic. The inner green bark is cathartic, and an infusion of it in some, will purge moderately, in doses of $\frac{1}{2}$ to 1 fluid ounce. The flowers, when made into a warm infusion, are diaphoretic and gently stimulant; in cold infusion, diuretic, alterative and cooling. Elder flowers may be used in all diseases requiring such action, as in derangements of the liver in children. In erysipelas, elder flowers, both as a laxative and cooling medicine, are exceedingly valuable. Dose: of the fluid extract of the

flowers, $\frac{1}{2}$ to 1 teaspoonful; infusion of the flowers, 1 to 2 fluid ounces, three or four times a day. (See INFUSION.)

SANGUINARIA CANADENSIS, *sang-gwe-na'-re-a kan-a-den'-sis*, bloodroot, or red puccoon, is a perennial plant belonging to the Nat. order *Papaveraceæ*. It is found growing throughout the United States and Canada. The root yields an active principle named *sanguinarin*. Bloodroot is an acrid emetic, with narcotic and stimulant properties. It is actively stimulant in its primary operations. In small doses, it excites the stomach, and accelerates the circulation; more largely given, produces nausea and consequent depression of the pulse; and in the full dose occasions active vomiting. The effects of an overdose are violent vomiting, dizziness, faintness, alarming prostration, etc. The powder, applied to fungous growths, and indolent ulcers, proves of utility. The infusion with vinegar, as a local application, has been found valuable in removing ringworms, warts, etc. (See INFUSION). Bloodroot has been given in typhoid pneumonia, catarrh, whooping-cough, croup, pulmonary consumption, inflammation of the lungs, scarlet fever, rheumatism, jaundice, dyspepsia, dropsy of the chest, and some other affections, either as an emetic, nauseant, or alterative, and its virtues are highly praised by many physicians. As an excitant to the liver, it is given in small doses. Dose: of the fluid extract, 5 to 15, and 40 to 60 drops; solid extract, $\frac{1}{2}$ to $1\frac{1}{2}$, and $2\frac{1}{2}$ to 5 grains; powder, as an emetic, 10 to 20 grains; as a stimulant and expectorant, 3 to 5 grains; as an alterative, $\frac{1}{2}$ to 2 grains.

SANITARY SCIENCE, *san'-e-ta-re* [Lat. *sanitas*, health], is that department of human knowledge which regards the laws of the human body, and of the agents by which it is surrounded, with a view to the preservation of health and the warding off of disease and death. The practical application of these laws constitutes *hygiene*, or the art of preventing disease. This is commonly divided into public and private hygiene, the former having regard to the healthy condition of persons in communities, barracks, workhouses, etc.; the latter to the health of individuals. (See HEALTH, etc.)

Principles.—When we regard mankind in general, we find that the external agents by which we are surrounded act very differently on different individuals, arising from temperament, age, idiosyncrasy, habit, hereditary tendency, etc., all of which it is of importance to keep in view in any application of hygienic rules. Thus, the conditions which would ensure the health of an American are not applicable to the Esquimaux or Hindoo. There are certain diseases to which youth is most liable, others to which age; and persons of different temperaments exhibit very different tendencies with respect to disease; and so with

other peculiarities. Of external agents, influencing health, the principal are the atmosphere, light, heat, electricity, water, and soil. (See AIR, LIGHT, HEAT, DAMP, COLD, WATER, ETC.) The soil is an important agent in regard to health, some soils retaining moisture and giving rise to malaria, others rapidly absorbing damp. (See MALARIA.) The internal agents, or those which act more directly on the functions of the body, are generally included under the heads of FOOD, CLOTHING, EXERCISE, MENTAL EXERCISE, OCCUPATION, SLEEP, ETC. (which see).

Public hygiene has for its object a particular knowledge of all the circumstances affecting the health of a community, and the application of rules and remedies to the many unwholesome influences that spring out of a social existence. It takes cognizance of the geographical positions of cities, towns and villages, the arrangement of streets, the situation and construction of houses, including warming, lighting, ventilating, etc.; the construction and ventilation of cellars, privies, water-closets, etc.; the cleansing of the public ways, including draining, sewerage, scavenging, etc.; the purity and sufficiency of the water supply, offensive and injurious trades; the situation of obnoxious manufactories, slaughter-houses, workshops, etc.; public vaccination; the location of cemeteries, and the proper disinfection and disposal of the dead; the unwholesome exhalations from vaults and cemeteries; the proper inspection of hospitals and markets, including the adulteration of food, the sale of impure meat and half-decayed vegetables; the origin, spread and prevention of epidemic and contagious diseases, and an almost infinite number of kindred subjects. For the further investigation of this all-important subject, see HEALTH, DISEASE, AIR, VENTILATION, HOUSES, BED-ROOM, CHIMNEY, DRAINAGE, WATER, WHITEWASHING, WALLS AND WALL PAPERS, ARSENIC IN WALL PAPER, COLD, DAMP, HEAT, LIGHT, MALARIA, CONTAGION, WATER-CLOSETS, DISINFECTANTS, VACCINATION, HOSPITALS, QUARANTINE, ADULTERATION OF FOOD, LIFE, CLOTHING, FLANNEL, COLD FEET, ABLUTION, BATHS AND BATHING, TOILET, CLIMATE, ACCLIMATIZATION, HEALTH RESORTS, MINERAL WATERS, FOOD, MEALS, DIGESTION, DIET, REGIMEN, TRAINING, HABIT, DRINKS; STIMULANTS, ALCOHOLIC; EXERCISE, RECREATION, EXCITANTS, PASSIONS, MENTAL EXERCISE, OCCUPATION, POVERTY, SLEEP, EARLY RISING, ELECTRICITY; AGE, OLD; CLIMACTERIC DISEASE, CHILDREN, TEMPERAMENT, HEREDITARY TENDENCY, MARRIAGE.

SANTONINE, *san'-to-nin*, a crystalline principle obtained from the *rtemesia Santonica*, or *Artemesia Contra*. When pure, it occurs in colorless prisms, possessing a feebly bitterish taste, which upon exposure to the light assume a brilliant yellow color. It is the most certain remedy we possess for the expulsion of round worms (*Ascarides Lumbricoides*). Three doses should be given in succession, at intervals of

six or eight hours, the last dose to be combined with an aperient, or followed by one a few hours after. After the lapse of three or four days, the three doses may be repeated, if necessary. It discolors the urine and the white of the eye, and gives a deep yellow hue to all the objects of vision. The dose for children under four years is from 2 to 4 grains; above twelve years, from 6 to 8 grains. It is best given in thin syrup on an empty stomach.

SAPONARIA OFFICINALIS, *sa-po-na'-re-a of-fis'-e-na'-lis*, or soapwort, a perennial plant found growing in water places, both in Europe and America. The roots and leaves are the parts used in medicine. The roots when soaked with water become frothy like soap suds. It is tonic, diaphoretic, and alterative, and is used in the treatment of syphilis, scrofula, and skin diseases, also in jaundice, affections of the liver, and rheumatism. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 2 to 4 fluid ounces. (See INFUSION.)

SARRACENIA PURPUREA, *sar-ra-se'-ne-a pur-pu'-re-a*, or pitcher plant, known also by the common names, side-saddle plant, fly-trap, huntsman cap, water cup, Eve's cup, and small-pox plant. It is an American plant, belonging to the Nat. order *Sarraciniaceæ*. It grows in the Southern States from Florida north, and flowers in June. The whole plant is used medicinally. Stimulating, tonic, diuretic and laxative. Used in uterine derangements, dyspepsia and other gastric difficulties. It has sustained considerable reputation in the treatment of small-pox, and is said to arrest the development of pustules, killing, as it were, the virus, thereby changing the character of the disease, and preventing the pitting. Dose: of the powder, 20 to 30 grains; infusion, 2 to 3 fluid ounces, three or four times a day. (See INFUSION.)

SARSAPARILLA. (See SMILAX.)

SASKATCHEWAN, VALLEY OF THE, CLIMATE OF. (See CLIMATE.)

SASSAFRAS OFFICINALE, *sas'-sa-fras of-fis'-e-na'-le*, or sassafras. A tree belonging to the Nat. order *Lauraceæ*. It is a native of North America. It is stimulant, diuretic, diaphoretic, and alterative. It is used in scrofula, chronic rheumatism, and cutaneous eruptions. The oil, in doses of from 5 to 10 drops on sugar, is useful in obstructed menstruation, and also to relieve after-pains. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; tincture, $\frac{1}{2}$ to 1 fluid ounce; infusion, 1 to 2 fluid ounces. (See INFUSION.)

SAUSAGE, *saw'-saj* [Fr. *saucisse*]. Sausage, generally speaking, is indigestible, as an article of diet.

SAVIN. (See JUNIPERUS.)

SCABIES, OR ITCH. (See ITCH.)

SCALD-HEAD, *skawld'-hed*, known as *favus*, *porrigo*, and *tinea favosa*, is a fungus parasitic disease, composed of cup-shaped scabs, sometimes distinct and separate, and at other times running into each other, capable of being transferred from one person to another, and having for its most common site, the hairy scalp.

Symptoms.—It commences with a slight itching, which continues for several hours, and is followed by an eruption of small red points, very sensitive to the touch, and in the course of twelve or fifteen hours, crowned with a small yellowish point, giving the head the appearance of being covered with a sulphur-yellow coating. These points exude a peculiar fluid which soon becomes dry and brittle, each scab containing a cup-like depression in the centre. Sometimes the eruption comes in successive crops, affecting the same, or different parts, of the head at distant intervals. When the disease has become somewhat advanced, a thick, tenacious fluid is secreted in such abundance as to form a thick crust over the whole head.

Treatment.—This is both constitutional and local. The former includes the proper regulation of the bowels with small doses of rhubarb and soda, and the administration of tonics, such as the infusion of cascarrilla, or the compound infusion of gentian (sometimes the administration of Fowler's solution of arsenic does much good); and the latter, the application of some one or more, in turn, of the many remedies recommended in medical works for this disease. The first indication is to destroy the fungus; this is recommended to be done by shaving the head, and applying a bread poultice until nearly all the scabs are removed, and then washing the site of the disease with tar-water, or anointing it with the tar ointment, made by rubbing well together equal parts of tar, soft soap, whiskey, and lard. This ointment should be washed off with soap and water, and applied fresh, morning and evening, and to prevent spreading, the affected one must be isolated from the rest of the family. In the early stages of the disease, the application of spirits of turpentine, twice a day, will frequently effect a cure.

When the disease has become advanced, the application of some of the following will generally succeed: sulphate of copper, 7 grains to 10 ounces of water; nitrate of silver, 5 grains to 8 ounces of water, or the mild nitrate of mercury. The application of a wash, made by putting 5 grains of veratria to 1 pint of alcohol, is also highly recommended. It must be used with great caution on account of its poisonous properties. Oxide of zinc, 1 dram to 1 ounce of lard, is also a favorite remedy.

SCALDS. (See BURNS AND SCALDS.)

SCALES, OR SCURF. (See DESQUAMATION.)

SCALP, *scalp* [Lat. *scalpo*, to cut, to scrape, to carve], or the skin of the head, is tolerably thick and firm, and is connected to the parts immediately subjacent, by a rather loose cellular tissue. These circumstances often give a peculiar character to the effects of violence, and to wounds of the head, for the skin being firm, and the cellular tissue being easily torn, large portions of the scalp are occasionally separated in flaps, either entirely or partially.

SCALP WOUNDS.—Bleeding from wounds in the scalp is often profuse, especially if an arterial branch has been divided; it may, however, generally be stopped by the use of cold, or by pressure. One chief danger to be apprehended after wounds of the scalp—independent of the violence to the brain which is often a concomitant of such accidents—is the occurrence of erysipelas, which may set in, spread over the head, cause extensive formation of matter under the skin, and perhaps destroy the patient. Such a case must, of course, be treated as erysipelas from any other cause; but if a medical man has not before seen the patient, he ought to do so now without delay; it may require all his skill to save life. (See WOUNDS.)

Scalp eruptions.—The scalp is the seat of different forms of eruption, or of skin disease, especially in children. The first great object in eruptions of the scalp is to get them under treatment as early as possible, the next to observe the strictest cleanliness. If the eruption is extensive, it is better to cut the hair close off altogether at once. The hair having been removed by clipping, in preference to shaving, washing with good brown soap, with warm soft water, night and morning, is a process which will cure many a scalp eruption, especially among those classes in whom deficient cleanliness is often the cause of the evil. When this does not suffice, an ointment made with 10 grains of the red oxide of mercury to 1 ounce of lard, smeared slightly over the affected part, is often of much service. As long, however, as there are any scabs or incrustations on the head, there is no use applying either this ointment or any other application; these, therefore, should be removed in the first place by poulticing. In some kinds of scalp eruptions, such as scald-head, alkaline washes are often of service. For treatment in full, see SCALD-HEAD.

In all cases of tendency to eruption on the scalp, the diet should be attended to, salted meats forbidden, and in those of full habit, the allowance of animal food curtailed, and milk and farinaceous diet substituted, more or less according to circumstances; on the other hand, in the weak and delicate, it may be requisite to improve the diet both in nourishment and stimulation. (See ERYSIPELAS, SKULL, WOUNDS, DANDRIFT, SCALD-HEAD, HAIR, BALDNESS.)

SCALPEL, *skal'-pel* [Lat. *scalpellum*, from *scalpo*, to scrape]. A common dissecting knife.

SCAMMONY. (See CONVULVULUS SCAMMONIA.)

SCAPULA, OR SHOULDER-BLADE, *skap'-u-lā* [Lat., the shoulder-blade], is the name given to that flat, triangular bone passing from the shoulder-joint in a direction towards the vertebral column, and extending, when the arms hang loosely, from the first to about the seventh rib. (See SHOULDER.)

SCAR. (See CICATRIX.)

SCARIFICATION, *skar'-e-fe-ka'-shun* [Lat. *scarificatio*], is the operation of making small cuts or punctures in the skin by means of a lancet or other cutting instrument, particularly that used in cupping. (See CUPPING.)

SCARIFICATOR, *skar'-e-fe-ka-tur*. An instrument used by surgeons to evacuate blood. It is made in the form of a box, in which are fitted ten, twelve, or more lancets. The instrument is so constructed that the depth to which the lancets penetrate, may be made greater or less, at the option of the operator. (See CUPPING.)

SCARLATINA, *skar-la-te'-nā* [Lat.], is but another name for scarlet fever, although, popularly, the former is considered a milder and less dangerous disease than the latter, on account of rose-rash or scarlet-rash often being improperly called scarlatina. (See SCARLET FEVER.)

SCARLET FEVER, OR SCARLATINA *skar'-let fe'-vur* [Lat.], are both designations for one and the same disease. It is an extremely contagious disease, and the poison lingers in clothes and around the rooms for a long time; instances have been known where the poison existed and gave rise to the disease at the expiration of a year. After the poison has found access to the blood, it lies dormant for from five to seven days; this is called the period of incubation. This disease is divided into three forms: one called *simple scarlatina*, in which the throat remains unaffected; another, called *scarlatina anginosa*, in which both the skin and the throat are involved, and *scarlatina maligna*, in which the throat is very severely implicated. In rare cases, scarlet fever occurs in what is called the latent form, the throat being sore, and swallowing difficult, but there is no eruption.

Symptoms.—Generally, the first symptom complained of in the incipient stage of scarlet fever, is sore throat, either accompanied, or quickly succeeded by the usual symptoms of a feverish attack, shivering, headache, loss of appetite, perhaps vomiting, followed by heat of skin, quick pulse and thirst. The eruption appears early, on the second day after the first symptoms of indisposition; it first shows itself in minute red points on the chest and arms, especially about the elbows, the

points becoming more numerous, till they form one diffused surface of a tolerably bright scarlet eruption, which extend to the neck, face, and abdomen, and body generally. On the second day, when the eruption is appearing, the symptoms of general fever, and especially the heat of skin, continue unabated, the throat is more inflamed, and the tongue assumes the appearance characteristic of this disease. It is probably covered with a white, creamy-looking fur, through which the papillæ on its fore part, about the tip especially, project like red points; this appearance may continue, but in many cases, the fur comes off as it were in patches at a time, and ultimately leaves the tongue preternaturally clean and red, covered with the elongated papillæ, in some cases, almost like a pile upon it. The eruption in scarlet fever generally looks more patchy upon the extremities than it does upon the trunk. In a moderately favorable case of scarlet fever, the eruption begins to fade between the third and fourth day from its appearance, and with it, the feverish symptoms, and other general symptoms of the disease, such as sore throat, etc. The patient, of course, is left weakened, but with moderate care, convalescence is for the most part speedy. The chief care is required until the desquamation or peeling of the skin is completed; during this period, also, the power of communicating the disease by contagion, appears to be retained.

Although favorable cases of scarlet fever pass through the course nearly as described above, there are much severer forms of the disease. The feverish symptoms from the first may have a high inflammatory form; or the reverse, may give evidence of an extreme condition of bodily depression, with tendency to malignant disease, and to a putrescent or typhoid condition. In such cases the eruption is tardy, and when it does appear, patchy and dusky in color; the swelling of the throat is great, and if they can be seen, the tonsils are evidently ulcerated, the breath offensive, the tongue swollen, and swallowing difficult, if not impossible; offensive discharges take place from the nose, and at the same time there is evident extreme depression of the constitutional powers, with delirium. Between the comparatively mild form first described, so mild indeed at times as scarcely to constitute a perceptible disease, and the malignant, scarlatina is met with in every degree of severity. As a general rule, the severity or mildness of the attacks of scarlet fever depend greatly upon the type of the prevailing epidemic, which at one time may be so favorable, that almost every case does well, whilst at another, the greatest fatality attends it.

It is very important to remember, that after scarlet fever there are certain affections—some of a very serious nature—which may be, and often are, developed. Such are termed *sequelæ*. Foremost among

these, in the frequency of its occurrence, and by reason of the danger which attends it, is dropsy. It is chiefly, though by no means exclusively, in the young subjects of the disease that dropsy occurs. The development of dropsy is generally preceded by certain sufficiently well-marked symptoms: languor, headache, loss of appetite, and very specially by a diminished, perhaps suppressed, secretion of urine. In this state of the patient, even more alarming symptoms may come on—convulsions, or extreme drowsiness. When dropsical swelling appears, it is usually first noticed about the ankles, or over the shins, or on the face, under the lower eyelids; but when it increases, other parts of the body become its seat, and there not uncommonly occurs dropsy of the chest. The latter is apt to take place suddenly, and to be accompanied by much difficulty of breathing, and other symptoms.

Among the other sequelæ of scarlet fever are permanent enlargement, often ending in suppuration of the glands of the neck, and deafness; the latter condition not unfrequently being found in connection with a discharge of matter from the ear—itself a source of great annoyance, and, so long as it continues, not free from danger.

Treatment.—The great variation in the severity of the attacks of scarlet fever must render the variation in the treatment equally great. When the form of the prevailing epidemic is extremely mild, little if any treatment is required, and many cases get none at all, not even confinement to the house, and certainly not to bed. This is not well, even for the sake of others, and should the weather be ungenial, or should cold be taken, a mild affection may be at once converted into a dangerous disease. A moderately active attack of scarlet fever requires, certainly, confinement to bed, in as well-ventilated a room as possible, kept at an average temperature of 60° Fahr.; the diet should be kept low, and should consist of milk, farinaceous articles, etc., and the thirst may be freely indulged with diluent drinks, such as barley-water, or thin gruel, the patient must not be covered with bedclothes, which will keep up feverish heat. If the heat of skin is great, and indeed in most cases of this disease, sponging the surface of the body with tepid water, with or without the addition of a little vinegar, is at once most beneficial and grateful to the patient; rubbing the surface with clean fresh lard is also productive of much comfort. A gentle aperient should be repeated once or twice in the course of the disease, a tablespoonful of castor-oil, a dose of magnesia and rhubarb, or from half to a whole seidlitz powder, may be required, or in fuller habits or where fever runs high, a more active purgative still.

The effervescing citrate of magnesia may be permitted in moderation to all; but more freely—and, indeed the salines generally—to persons

of full habit. From 5 to 10 grains—according to age—of chlorate of potash given every six or eight hours, in a little sugar and water, is one of the most appropriate cooling salines in this disease.

If the feverish symptoms run high, of course the lowering and cooling remedies must be more actively enforced. In most cases much relief is afforded to the throat by the frequent use of cold water, both externally and internally; small pieces of ice may be allowed to dissolve in the mouth. Externally, cloths wrung out of cold water, or a bag with pounded ice, are also of much service to the throat. When the throat is very much swollen, leeches may be requisite, but so much caution is called for in the abstraction of blood in scarlet fever, that this should only be done under medical sanction. Great enlargement of the glands around the jaw, and in the neck, must always be seriously regarded. When a case of scarlet fever presents symptoms of malignancy, every method of supporting the strength by wine, broths, etc., must be used, and the preparations of chlorine employed both internally and as washes and gargles, to the nose, mouth, tonsils, etc. The chlorate of potash in from 5 to 10 grain doses, must be given every three or four hours; or muriatic acid in 5-drop doses in sweetened water. Two drams of the solution of chloride of soda, in $\frac{1}{2}$ pint of water, will make a convenient wash, to be used with a syringe, if the child or person is unable to gargle. Salicylic acid has recently been introduced as a remedy in the treatment of this disease. In doses of from 3 to 5 grains every four hours, in the form of emulsion with mucilage, it certainly exerts a favorable influence upon the throat symptoms, and lessens the tendency to dangerous complications. (See SALICYLIC ACID.)

After the eruption has faded, the person may sit up, and gradually return to fuller diet, such as pudding, broth, fish, etc., the bowels being kept free, but not purged, and close attention given to the state of the urine as to the quantity and appearance. At this stage, too, much comfort and benefit will accrue from the use of two or three warm baths. These relieve greatly the discomfort arising from the harsh and dry state of the peeling skin, and what is more important, encourage and keep active its ordinary perspiratory functions, which are apt to be impaired or impeded, and thus to give rise to a dropsical condition connected with a disordered state of the kidneys. The attacks of dropsy are most likely to occur from the end of the first fortnight to the end of the fourth week after the decline of the eruption.

Although mild cases of scarlet fever may be, and every day are, carried safely through with simple nursing, should the case be at all an active one, it ought to be visited by a medical man; if it is severe, his presence is indispensable, equally so, whatever the case may have been,

if the least symptoms of the after-dropsy show themselves. Should this last contingency occur, warm baths ought to be used to restore, if possible, the functions of the skin, hot bran poultices applied to the body, and if there is pain about the kidneys, blood taken by leeches or cupping. The bowels should be well cleared, or rather purged, by the calomel and colocynth pill, or better still, by calomel and compound powder of jalap; at the same time a draught consisting of a dram of nitrous ether, $\frac{1}{2}$ an ounce of spirit of mindererus, and 10 or 15 drops of ipecacuanha wine, in a wine-glassful of water, may be given every four or five hours. These measures ought to be sufficient till medical assistance is procured; if, as sometimes occurs, convulsions or delirium come on, they are to be treated as directed in the articles CONVULSIONS, TYPHOID FEVER. If the affection of the throat has extended to the ears by the eustachian tubes, the structure of the organs of hearing may be materially damaged, and deafness, total or partial, be the result. Frequently, runnings from the external ears, from the nose or eyes, continue for long after the subsidence of scarlet fever, and if the attack has been a severe one, a permanent state of impaired health may be the consequence. Of course, if a patient, after an attack of scarlet fever, remains weak, tonic medicines, quinine, or iron, with wine and good nourishment will be required, also warm clothing.

Preventive treatment.—Inasmuch as scarlet fever is an exceedingly contagious disease, and in its severer forms very fatal, it is of the utmost importance that all should be acquainted with the best means of preventing its ravages. In the first place, persons who never have had it, should be very careful about exposing themselves to its influence, and when the exposure is unavoidable, great care should be taken to live regularly. A proper amount of sleep and food should be taken, the clothing be frequently changed, and a bath taken once a day. In the shape of drugs, belladonna, 3 or 4 drops of the tincture, three or four times a day, has been highly lauded as a preventive. Opinion is very much divided as to its efficacy, but it is worth trying. Sulpho-carbolate of soda, in doses of 20 grains, three times a day, by destroying the germs of disease in the blood, holds out a much better hope of efficient prevention. Tar, in the shape of pills, 5 grains, three or four times a day, is another remedy which has been used with success. It is also a good plan to take 20 or 30 drops of sweet spirit of nitre, three times a day. When the disease has obtained entrance to a home, the patient should be placed in a roomy, well-ventilated apartment, as far from the other inmates as possible, from which all unnecessary articles have been removed. The nurse should hold as little intercourse as possible with the rest of the family, and should, when going to other portions of the

house, wash her hands with carbolic acid water. • All discharges from the patient, all slops from the sick-room, and all cloths used around the bed, should be disinfected with carbolic acid, and destroyed. All dishes used by the patient should also be thoroughly cleansed. After the recovery of the patient or patients, all clothing, bedding, and furniture of the room should be thoroughly cleansed and disinfected, and the room itself be well scrubbed, the paper removed, the ceiling white-washed, and be left for at least a month, unoccupied. (See CHILDREN, COLD FEET, FEVER, BROMO-CHLORALUM, DISINFECTANTS, DIPHTHERIA.)

SCARLET-RASH, OR ROSE-RASH. (See SKIN, DISEASES OF THE.)

SCHOOL, *skool* [Lat. *schola*]. It too often happens, that in consequence either of ignorance or of carelessness, the health of young people suffers irretrievable injury during the years of instruction. In day-schools, the chief source of injury is from insufficient ventilation. The consequences of this, and the remedies, are sufficiently entered into under such articles as AIR, Bed-Room, VENTILATION, HOUSES, ETC., and require no further comment here.

In *boarding-schools*, the health of the pupils is, of course, subject to those general conditions and laws of health, which are commented on in the various sanitary articles; and parents would do well to assure themselves that due attention is paid to these, ere they commit the daily life of their children to influences over which they have no control. It is to be hoped, that there are few *seminaries* or colleges for the young, in which actual deficiency of food occurs; but it is possible, that in the selection and preparation of the food, there may be defects, which, to strong-constituted children, are of comparatively little moment, but which are of the greatest importance to the delicate. The point should not be overlooked. It is impossible, in the limited space of this work, to enter into particulars, but the reader is referred to the various articles on FOOD, DIGESTION, DIET, and the principles of ALIMENT. Equally important with quantity and quality of food, is the permission of sufficient time for meals (see MEALS), not only for the mere eating, but for rest after, before school work is resumed. (See DIGESTION, DYSPEPSIA, HEALTH, SANITARY SCIENCE, ABLUTION, BATHS AND BATHING, EXERCISE, CLOTHING, COLD FEET, EDUCATION, CHEST.)

SCIATICA, *si-at'-e-ka* [corrupted from the Gr. *ischion*, the hip], is neuralgia or nervous rheumatism, affecting the great or sciatic nerve of the lower extremity. This nerve, the largest in the body, passes down the back of the thigh to the ham, a little above which it divides into two branches.

Symptoms.—The sciatic nerve sometimes becomes the seat of fevers.

Neuralgic pain, felt down its entire course, or perhaps in the hips only, or sometimes in the foot and ankle only; the pain comes on in paroxysms, and is generally increased by exercise; in some cases, pressure upon the course of the nerve causes pain.

Treatment.—Sciatica is often attended with so much suffering, that it affects the general health to a considerable degree; moreover, it is frequently most difficult to get rid of. For these reasons, the case should be under medical superintendence. Leeches and cupping, in the first instance, down the course of the nerve, especially in plethoric subjects, followed by blisters, are useful; or heat and moisture may be used with advantage, in the form of the bran poultice, followed twice or three times a day by an embrocation composed of 1 part of turpentine and 2 of soap and opium liniment. Two drams of this should be rubbed in for ten minutes at a time. Tincture of aconite, or the chloroform liniment may also be applied to the affected part. The bowels being cleared by a purgative, if there is no tendency to fever, drain-doses of carbonate of iron, given three times in the twenty-four hours, often cures quickly; or turpentine, in doses of 15 drops, given in milk, three times a day, may be tried; or quinine, in 2 grain doses, every eight hours. There is considerable uncertainty in the effect of remedies in sciatica, even in skilful hands. It frequently requires the use of some anodyne, and for this purpose morphia injected under the skin by the hypodermic syringe, has often been productive of much benefit; of course it can only be done by a physician. Sciatica is often connected with rheumatism, and in such circumstances, may be removed by the use of those remedies which prove useful in that disorder. When other means fail, benefit has frequently resulted from the use of electricity, particularly the constant current, and warm saline baths.

SCILLA MARITIMA, *sil'-la mar-e-ti'-ma*, or squill, a perennial plant belonging to the Nat. order *Liliaceæ*. It is a native of all parts of the Mediterranean coast. The bulb, which is the part used in medicine, is expectorant, diuretic, and in large doses, emetic and purgative. As an expectorant, it is generally combined with senega, as in the compound syrup of squill, and used in affections of the bronchial membrane, and in spasmodic croup. As a diuretic, it is used in dropsy to increase the secretion from the kidney. For this purpose, it is generally combined with digitalis. In large doses it is an irritant poison. Dose: of the fluid extract, as an expectorant and diuretic, 2 to 6 drops; as an emetic, 10 to 20 drops; powder, 1 to 2 grains; vinegar of squill, 30 to 60 drops; syrup, $\frac{1}{2}$ to 1 teaspoonful; tincture, 10 to 30 drops; compound syrup of squill, known as hive syrup, 10 drops to $\frac{1}{2}$ a teaspoonful.

SCOURING RUSH. (See *EQUISETUM HYEMALE*.)

SCREAMING OF INFANTS, *skreem'-ing*, if continued, and if increased on particular movements of the body, should not be neglected. Intermittent screaming may be indicative of painful affection of the chest or abdomen, which incites the child to scream; whilst, on the other hand, the aggravation of the pain thus induced, compels it again to desist, thus giving the intermittent character. Screaming of children during, or on awaking from sleep, may arise from the irritation of teething, or of worms, etc., or from indigestible matters in the bowels; for these causes the suitable remedies are to be used, as directed in the proper places. (See DENTITION, WORMS, COLIC, OBSTRUCTION OF THE BOWELS.) Screaming in sleep may be simply a bad habit, untraceable to any cause, or may be attributable to dreams, or excitement of mind produced by fright during the day, excited accidentally, or by design, by foolish nurses. Lastly, screaming may arise from incipient disease of the brain. If the affection be persistent, its cause should be investigated by a medical man. (See CRY OF CHILDREN; CHILD, CHILDREN; ETC.)

SCROFULA, OR KING'S EVIL, *skrof'-u-la* [Lat. *scrofulæ*, *scrofa*], sometimes called *struma*. The condition of scrofula is common to certain persons; and, when they possess it, they are said to be scrofulous. During early life, such have pale, flabby, pasty-looking complexions, large heads, narrow and often malconstructed chests (chicken-breasted), with protuberant belly, a soft muscular system, and feeble, languid circulation. These are the characteristics of the leucophlegmatic temperament; but the scrofulous constitution is not confined to that temperament alone—it may be present with the sanguine and melancholic. In the former it is indicated by light red hair, long eyelashes, sluggish, generally dilated pupils, fair brilliant skin and complexion. Such children are sometimes quite precocious; they cause the flattering hopes of parents, but gloomy forebodings to the physician. In the latter, the mental state is sluggish, the skin dark and muddy, the bodily energies defective. In those persons whose chief characteristics have thus been noticed, scrofula, in a marked form, is apt, sooner or later, to be developed.

Causes.—Of the causes of scrofula, there can be no doubt that hereditary predisposition is the cause above all others; the fact is beyond dispute, and there are few families who have not, indirectly at least, practical connection with the fact. It is to be observed, however, that the predisposition is strengthened, if a parent adds to the taint an acquired state of bad health, or if in a father the bodily powers are impaired by age; probably the reverse holds good, that whatever conduces to health and vigor, even in parents tainted with scrofula, tends to improve the constitution of offspring as regards the predisposition.

Further, it is undoubted, that whatever hereditary tendencies children may possess, they are greatly retarded or strengthened by the external conditions to which such children are exposed. If the climate in which they reside is dry and bracing, if they are so placed that healthy habitations, good clothing, and nourishing food, are provided for them, and especially if their parents and guardians are awake to the importance of these things, of being on the watch for any tendency to failing health, or to disease, the chances of health and life are far greater, than they are for children of even originally better constitution, who are exposed to a damp, cold climate, and to the unhealthy influences attendant upon the circumstances of poverty.

Symptoms.—The following description of the signs of scrofula by Dr. Phillips, one of the highest authorities on the subject, is peculiarly truthful: “In the form of the body there is usually observable a want of muscular development; but even this is often absent. There is often an appearance of plumpness and roundness, which is the result, not of muscular development, but simply of an infiltrated condition of the cellular tissue, and which rapidly disappears under fatiguing exercise, privation, or disease. Commonly, there is a general paleness and coldness of the surface of the body, which is owing to a feeble circulating apparatus; but in a large number of cases, that paleness does not extend to the face. The color of the hair is very variable, but for the most part it inclines to a dark tint. Of nearly nine thousand scrofulous children examined, a little over thirty-two per cent. had light hair and eyes. The abdomen is commonly tumid—discharges from the nose, the eye, and the ear are common—the tongue has commonly a dirty-whitish coating; the tonsils are usually enlarged, and they are often so tumid as to impress a disagreeable and frequently husky character upon the voice, and to cause snoring when the patient is asleep. The stomach and bowels are frequently disordered, and digestion is ill-performed. Sometimes the evacuations are clay-colored, very offensive, and of varying consistency, at others having a redundancy of bile. The skin, though often dry and hard, is often the seat of a considerable greasy exhalation, sometimes it is found to be fetid and sour. The scalp and other parts of the cutaneous integument are often the seat of eruptive affections. The absence of vascular and muscular energy, often causes the child to lie and sit about much, and indisposes him to enter into the energetic games of his playfellows. As to the intellectual development claimed for scrofulous persons, that is usually wanting. That many scrofulous children present that character is quite true; but the result of very careful observation,” says Dr. Phillips, “has convinced me that the overwhelming majority are without those superior intellectual qualities,

which have been pointed out as their ordinary characters.” Moreover, if the intellectual powers are forced, as too often happens, “and the nervous and intellectual systems have the vital actions concentrated on them too intensely, the sufferer loses flesh, the general health languishes, and the intellectual faculties may give way, destroyed by an opposite, but not less sure, method, than that which breaks down the poor man’s child.”

As noticed above, the very common idea that scrofula is usually associated with light hair and complexion, is far from being correct, the larger proportion of scrofulous subjects have dark hair and eyes, with a dingy complexion, and some are ruddy, and to the common observer look robust; others with delicate skin, inclined to freckle, have red hair.

Treatment.—In the way of treatment, much good is often to be done; but, owing to poverty and privation, numbers of persons who might possibly have been saved are cut off. Fresh air, warm clothing, cleanliness in person, generous diet, plenty of sleep, a residence at the seaside, with daily sea-bathing are the chief particulars; and as adjuvants rank the whole series of tonic medicines,—more particularly may mention be made of cod-liver oil. The oil may be taken alone, its taste dismissed with lemon-juice, or cinnamon, or in combination with the hypophosphites, as prepared by many first class houses in this country. Cod-liver oil undoubtedly exercises a remedial influence over scrofula. If, as sometimes happens, the stomach will not retain the oil in any shape or combination, it may be rubbed into the skin over the chest and abdomen, a tablespoonful morning and evening.

Iodine is another remedy which has been successfully used in the treatment of scrofula. It is generally employed in the shape of Lugol’s solution, 5 to 10 drops, in sweetened water, three times a day; or as syrup of the iodide of iron, in doses of from 10 to 30 drops, three times a day. The juice prepared from the berries of the black elder, a strong decoction made from the fresh roots of the burdock, and fresh juniper berries are common remedies, all of which exert a favorable influence in scrofula, and frequently effect a cure when other means fail. For the cure as well as the prevention of scrofula, there is the most undoubted testimony in favor of a prolonged residence at the seaside, and the daily use of salt water baths. The chalybeate waters of the Virginia mineral springs, as well as the salt water of the salt springs of Florida, are also highly beneficial. (See CALCIUM, COMPOUND ELIXIR IODO-BROMIDE OF.)

SCROFULA PLANT. (See HELIANTHEMUM CANADENSE.)

SCRUPLE. (See WEIGHTS AND MEASURES.)

SCULLCAP. (See SCUTELLARIA LATERIFLORA.)

SCURF. (See DANDRIF.)

SCURVY, *skur'-ve* [Lat. *scorbutus*], is a disease which, two centuries ago, was endemic in all the northern countries of Europe, but which has now been almost entirely extinguished. It is requisite here to explain that what is meant by scurvy in this article, is a very different disease from that meant in the popular acceptation of the term, which is applied to undefined cutaneous disorders, especially of a scaly character. The error has probably arisen from the dry, scurvy appearance of the skin which often precedes an attack of the real scurvy.

Causes.—True scurvy is a severe disease, unquestionably owing to deterioration of the blood, as a result of inappropriate nourishment, especially of nourishment unvaried by the admixture of fresh vegetables, milk, etc. It is not contagious, neither is it caused by cold weather, by impure air, nor by the continued use of salt provisions, all of which have frequently been alleged.

Symptoms.—It is characterized by a state of general feebleness and incapacity for exertion, with livid spots or patches over the surface of the body, and particularly the limbs—parts of these are, moreover, swollen, hard, and painful; there is bleeding from the gums on the slightest degree of pressure, and a tendency to hemorrhage from, and ulceration of, other mucous surfaces; the breath, too, is very fetid.

Treatment.—It is owing solely to the privation, for a considerable length of time, of fresh succulent vegetables, and is infallibly and rapidly cured by the administration of these or of lemon-juice. The latter is really a specific against scurvy, whether it be employed as a preventive or as a remedy. It supplies something to the blood which is essential to its healthy properties. As for the rest, fresh animal food, with wine, porter, or ale, is of advantage; but bleeding, blistering, or mercury in any form should be religiously avoided.

SCUTELLARIA LATERIFLORA, *sku-tel-la'-re-a la'-ter-e-flo'-ra*, scullcap, or skullcap. A perennial herb, growing in damp places throughout the United States, and belonging to the Nat. order *Lamiaceæ*. It is sometimes known as hood-wort and mad weed. The whole herb is used in medicine. Scullcap is a valuable nervine and tonic. It has also sudorific and diuretic properties. It is used in facial neuralgia, St. Vitus's dance, convulsions, tetanus, delirium tremens, as well as in ordinary diseases of the nerves. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 1 wine-glassful, three times a day.

SEA-AIR. (See AIR, CLIMATE.)

SEA-BATHING. (See BATHS AND BATHING.)

SEARCHING, *serch'-ing*. Technically applied to the operation of introducing a metallic instrument through the urethra into the bladder, for the purpose of ascertaining the presence of a CALCULUS (which see).

SEA-SICKNESS, *se'-sik-nēs*. *Causes*.—The primary cause of the distressing affection, sea-sickness, has been a good deal disputed, but its dependence upon peculiar affection of the brain, by the motion of the vessel, seems now very generally admitted. It has been imagined, that the effect upon the brain was conveyed through the medium of the eye, and caused by the apparent movement of the objects of sight; as however, blind people suffer from sea-sickness, the affection must be excitable by other means than the above. Possibly, as has been suggested, it partly results from disturbance of certain portions of the brain which have for their function the preservation of the equilibrium of the body. That, however, sight is in some degree accessory to the excitement of nausea is evident from the fact, that some persons experience the sensation simply from objects appearing to move before them, as they do from a ship moved by the waves, or, indeed, in some cases by the mere appearance of a waving pattern upon a wall paper. The affection is more readily caused by long heaving waves, than by a short, rough sea. The treatment consists principally in prevention.

Preventive treatment.—The best preventives seem to be the horizontal posture, as near the centre of the vessel, and therefore the centre of motion, as possible; that is, where the motion is least. Exposure to the open air renders the liability less. Stimulants, combined with sedatives, appear to have considerable effect in preventing or alleviating the affection. A pill, composed of 4 grains of cayenne pepper, with 2 or 3 of extract of henbane, taken at intervals, may be found useful. Creasote is also an excellent antidote. (See CREASOTE.) Five to 10 drops of chloroform on a little white sugar has lately been suggested as a good remedy. Iced champagne has also been highly recommended both as a cure and a preventive. An ice-bag to the spine and a coating of colloidion over the stomach, are other means which have been used with success. Some persons find themselves less liable to sea-sickness if they take food freely, with others the reverse is the case; the effect probably depends upon the state of the digestive powers of the stomach, temporary or permanent. If these are vigorous, the excitement of digesting food acts probably as a counteragent to the cause of the nausea. Sea-sickness of itself is rarely injurious, but it should be a subject of consideration with persons who are liable, or likely to be, to head-affection, who are the subjects of rupture, prolapsus, etc., how far they should incur the risk of these being aggravated by the mechanical action of vomiting. Some who do not suffer from sickness while on the water, experience nausea and other uncomfortable sensations after landing—an effect, doubtless, due to a partial disturbance of the digestive organs, and probably to biliary disorder. One or two doses of compound

colocynth, or compound rhubarb pill, will generally remove this inconvenience. (See CHLORODYNE.)

SEASONS, *se'-nz* [from Lat. *statio*, station]. There are certain general rules of climate, connected with the seasons, which are well ascertained; such, for instance, as the greater prevalence of inflammatory attacks, and of disorders of the respiratory organs during winter and spring; the frequent occurrence of apoplexy during frost, and the epidemic of biliary disorder towards the close of summer and autumn, after the high temperature has permitted the accumulation of carbonaceous compounds in the system. At no period of life is the influence of the seasons on mortality more perceptible than in old age; and at no age less than between twenty and twenty-five, when the physical man, fully developed, enjoys the plenitude of power. (See ACCLIMATIZATION, CLIMATE, CLOTHING, FLANNEL, COLD, HEAT, ANIMAL HEAT, ETC.)

SEA-WEEDS. (See ALGÆ.)

SEA-WRACK. (See FUCUS VESICULOSUS.)

SEBACEOUS, *se-ba'-shus* [Lat. *sebum*, suet], a term applied to glands which secrete a suety substance, and likewise to the matter secreted. These glands are situated in the skin, and are most numerous about the face and nose. (See ACNE.)

SECALE CORNUTUM, *se-ka'-le kor-nu'-tum*, or ergot of rye, is a peculiar diseased or fungoid growth which is developed upon the seed of the common rye. The affected grain is sometimes called "spurred rye." As a remedial adjunct in the hands of the accoucheur, ergot of rye is most valuable, but is not likely to form part of the domestic medicine chest. It has been used in medicine in hemorrhage and other diseases, but chiefly on account of its undoubted action upon the womb. It can only be safely used by medical men. Dose: of the fluid extract, 20 drops to $\frac{1}{2}$ a teaspoonful; tincture, 30 drops to 1 teaspoonful; infusion, 1 to 2 fluid ounces; powder, 20 to 30 grains. (See INFUSION.)

SECONDARY, *sek'-und-a-re* [Lat. *secundarius*], something that acts as second, or in subordination to another. Thus, in diseases, we have secondary symptoms.

SECRETION, *se-kre'-shun* [Lat. *secretio*], in Physiology, is that process by which materials are separated from the blood, and from the organs in which they are formed, for the purpose either of serving some ulterior object in the animal economy, or of being discharged from the body as excrement. Secretion is one of the natural functions of the living body, and is as necessary to health as nutrition. The glands are the principal organs to which the office of secreting is more especially ascribed, and the number of them is considerable. The

glandular secretions are of seven different sorts—namely, the tears, saliva, bile, pancreatic fluid, urine, semen, and milk.

SECUNDINES, *sek'-un-dinze* [Lat. *secundus*, second], the after-birth and membranes cast off after the birth of the child. (See AFTER-BIRTH, CHILDBED.)

SEDATIVES, *sed'-a-tivz* [Lat. *sedatus*, calm], in Medicine, agents which produce direct depression of the action of the vascular system with little sensible evacuation. Inasmuch as their depressing effects are not preceded by any obvious excitement or increased movement of the heart or arteries, they differ from narcotics. Sedatives should be used with caution, in consequence of their depressing effects; and as most of them are active poisons, the dose should be strictly regulated. (See NARCOTICS.)

SEDENTARY HABITS. (See EXERCISE, PLEASURE, RECREATION, DIET, FOOD, DIGESTION, DYSPEPSIA, AIR, HEALTH RESORTS, HEALTH, ETC.)

SEEDS, COLLECTION AND PRESERVATION OF. (See PLANTS, ETC.)

SEIDLITZ POWDERS, *sed'-litz pow'-durz*, are two distinct powders, the one contained in a white paper, consisting of 2 drams of Rochelle salt, and 40 grains of carbonate of soda; the other in a blue paper, consisting of 35 grains of tartaric acid. The contents of the first paper are to be dissolved in half a pint of spring water, and the contents of the blue paper to be added, and the mixture drunk during effervescence. This forms a grateful and cooling aperient. (See CATHARTICS, EFFERVESCENCE, SALINES, ETC.)

SEIDLITZ WATER. (See MINERAL WATERS.)

SELF-ABUSE. (See ONANISM, SEMEN, NOCTURNAL DISCHARGES, STERILITY, ETC.)

SELTZER WATER. (See MINERAL WATERS.)

SEMEN, *se'-men* [Lat. *sero*, to sow], the spermatic secretion or seminal fluid. This secretion frequently becomes excessive by criminal secret indulgence, obscene conversation, books and pictures; and by a perverted imagination. This excess produces nervous exhaustion, manifested by listlessness, paleness of the skin, the incapacity of concentrating the mind upon any particular subject, nocturnal and involuntary emissions, horrors, nervous debility, dyspepsia, emaciation, and sometimes by a state of languor and inanity, closely allied to idiocy. Where the above symptoms exist, no mode of treatment can be prescribed that would be suitable to all cases, except it be the absolute discontinuance of all the practices which caused them; a course of tonics: a regular and temperate life, with gentle exercise, sea-bathing when convenient, and a tolerably generous diet, and early marriage. (See ONANISM,

NOCTURNAL DISCHARGES, IMPOTENCE, STERILITY, BUCHU, DAMIANA, SALVIA OFFICINALIS, TONICS, STRYCHNOS NUX VOMICA, NERVOUS DISEASES.)

SEMINAL WEAKNESS. (See SEMEN, ONANISM, NOCTURNAL DISCHARGES, STERILITY, ETC.)

SEMINARIES. (See SCHOOL.)

SENDING FOR THE DOCTOR. (See MEDICAL ADVICE.)

SENECIO AUREUS, *sen-e'-she-o aw'-re-us*, life-root, golden senecio, or golden ragwort, a perennial plant growing on banks of creeks, and in low, marshy grounds throughout the Northern and Western States and Canada. The root and herb are the parts used in medicine, and they yield a peculiar principle called *seneciu*. Life-root is diuretic, diaphoretic, and tonic, and is used in gravel, strangury, and other urinary affections. It is said also to possess useful properties in the treatment of female diseases. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; infusion, 1 to 4 fluid ounces; *seneciu*, 3 to 5 grains, three or four times a day. (See INFUSION.)

SENEKA OR SENECA SNAKE-ROOT. (See POLYGALA SENEGA.)

SENNA. (See CASSIA.)

SENSATION, *sen-sa'-shun* [From Lat. *sensus*, perception]. When an impression made on the extremity of a nerve is communicated to the sensorium—or common centre of sensations—so as to excite the consciousness of the mind, it is called a sensation. (See NERVOUS SYSTEM AND NERVES.)

SENSES, *sen'-sez* [Lat. *sensus*, perception; *sentio*, to perceive, to feel]. These are the faculties by which we become acquainted with the condition of our bodies, and with certain properties and states of external things, such as their color, taste, odor, size, form, density, etc. The senses are five in number, viz., sight, hearing, taste, touch, and smell (all of which see). They have been well called the “five gateways of knowledge.” Their messengers, which convey all impressions to the brain, are the NERVES, which see. (See SENSIBILITY, SENSATION.)

SENSIBILITY, *sen-se-bil'-e-te* [Fr. *sensibilite*], that faculty of living parts by which they are capable of receiving impressions, which increase, diminish, alter, or suspend their actions. (See NERVOUS SYSTEM.)

SEQUELA, *se-kwe'-la* [Lat. *sequor*, to follow], in Medicine, any secondary affection which follows upon a disease. Thus the sequelæ of scarlet fever, or measles, are anasarca, the development of phthisis, scrofula, etc.

SERPENTARIA, OR SERPENTARY. (See ARISTOLOCHIA.)

SERPENTS' BITES. (See BITES AND STINGS.)

SETON, *se'-tn* [Lat., from *seta*, a bristle]. A seton is usually formed by means of a portion of a skein of silk, passed under the true skin, so

that it excites suppuration; it is, in fact, an issue. Caoutchouc and other tapes, are used for setons as well as silk. Setons are seldom used at the present day.

SEVEN-BARKS. (See *HYDRANGÆA ARBORESCENS*.)

SEVUM PRÆPARATUM, *se'-vum* [Lat. prepared suet], is the internal fat of the abdomen of the sheep, purified by melting and straining. It is used in cantharides plaster and ointment of mercury.

SEWER, *soo'-er* or *shore*, a passage to carry water under ground; a drain. (See DRAINAGE, HOUSES, SANITARY SCIENCE.)

SEX, *seks* [Lat. *sexus*]. With regard to the question of sex, in connection with childbirth, there can be little doubt that a pregnancy in which the child is a male, is likely to be more prolonged than one in which it is a female. According to the most reliable researches made on the influence of the age of parents, it is found that in general when the mother is older than the father, fewer boys than girls are born; the same is the case where the parents are of equal ages; but the more the father's age exceeds that of the mother's, so is the ratio of boys greater. The nearer the sexes approach puberty, the greater is the consideration required for the different tendencies of constitution, and after that period the peculiar differences, of the female at least, require constant consideration. As a general rule, females require medicine in smaller doses than men.

SEXUAL EXCESSES. (See ONANISM, SEMEN, NOCTURNAL DISCHARGES, IMPOTENCE, STERILITY, GONORRHEÆA, SYPHILIS.)

SHADE TREES, *shade*. Too much cannot be said in favor of the beauty and comfort of shade trees on the lawn, or by the dusty roadside, or as a protection from the biting cold blasts of winter, and the malarious exhalations from marshes; yet, in large clusters, very near a dwelling, shade trees with heavy, dense foliage are productive of much evil. They intercept the light and the refreshing breeze, harbor innumerable insects, and frequently give rise to damp walls, with all their bad results. (See COLD, MALARIA, LIGHT, DAMP, WALLS AND WALL PAPERS, AGUE, HOUSES.)

SHAMMY UNDERCLOTHES. (See CLOTHING.)

SHAMPOOING, *sham-poo'-ing*, is a system of mechanical manipulation of various parts of the body, for the cure of disease. In rheumatic affections, sprains, etc., it is said to be useful. The practice is much followed in the East. The practice of shampooing, or kneading the muscles of emaciated limbs, is of the highest value in retaining and promoting their nutrition.

SHAVE-GRASS. (See *EQUISETUM HYEMALE*.)

SHEEP LAUREL. (See *KALMIA LATIFOLIA*.)

SHERRY, *sher'-re*, one of the dry strong wines, contains, as imported into this country, rather more than nineteen per cent. of alcohol. It is free from the astringency of port wine, and generally agrees better with persons of weak digestive powers. To be good, it ought to be free from acid, or nearly so. (See **WINE**.)

SHINGLES. (See **HERPES**.)

SHIP FEVER, *ship*, a form of typhus. (See **TYPHUS FEVER**.)

SHIVERING, *shiv'-ur-ing*, as a symptom of illness, is the sensation of cold. The cause of the sensation of shivering is probably from the nervous system.

Shivering, or rigor, is a symptom which frequently accompanies the formation of pus or matter within the body, in the course of inflammatory disease. (See **RIGOR**.)

SHOCK, *shok* [Fr. *choc*], in medical language, is the depressing impression imparted to the nervous system, and, through it, to the constitution generally, as a consequence of severe pain or injury. The extent of the shock, its duration, and even its fatality, often depends more upon the part or organ through which it is received, than upon the actual extent of the living body injured, or the pain suffered. Thus, a comparatively slight blow over the region of the heart, upon the pit of the stomach, or on the neck, in all of which situations, nerves are collected in numerous interlacements, is apt to be followed by immediate, and, it may be, fatal shock. The depression of the system which follows a blow on the head is of a similar nature. Again, injuries which involve large portions of the body in destruction, which cause severe pain, or much effusion of blood, are all followed by shock. This subject is sufficiently treated of in the articles **BLOWS**, **CONCUSSION**, **CONCUSSION OF THE BRAIN**, **ACCIDENTS**.

The immediate treatment of a person who has suffered a shock is similar to that recommended in cases of **FAINING**, and of **CONCUSSION OF THE BRAIN** (which see) with the same precaution as to the use of stimulants. (See **REACTION**.)

SHOES, **TIGHT-FITTING**. (See **FOOT**, **CORNS**.)

SHORT-SIGHT. (See **VISION**.)

SHOULDER, *shole'-dur* [Ang.-Sax. *sculder*, *sculdor*]. The shoulder, in addition to the muscles and other soft parts, by which it is surrounded, is made up specially of the three bones, the shoulder-blade or scapula, the clavicle or collar-bone, and the humerus or arm-bone, the round head of which fits to the cup of the shoulder-blade—to form the shoulder-joint. The upper ribs may also be considered as entering into the formation of the shoulder region generally. (See **ANATOMY**, **DISLOCATIONS**, **FRACTURES**, **CLAVICLE**, **LIGAMENT**, **AXILLA**, ETC.)

SHOULDER-BLADE. (See SCAPULA.)

SHOWER-BATH. (See BATHS AND BATHING.)

SIALAGOGUES, *si-al'-a-gogz* [Gr. *sialon*, saliva; and *ago*, I drive], are medicines which increase the flow of saliva, as mercury.

SICK-ROOM, *sik'-room*. It is very much to be regretted that so much ignorance prevails in this country, respecting the domestic management of the sick-room, and that this ignorance is chiefly displayed by those whose duty it is to watch over the sick-bed, and carry out the directions of the medical adviser; yet it is a matter of congratulation, that this department of sanitary science is making immense strides, and acquiring fresh importance every day. To discuss this subject would require a volume in itself, and we confine ourselves to a few important points, with which all heads of families, nurses, and every one who may have charge of a sick-room should be familiar.

Choice of a sick-room.—With regard to the sick-room itself, when a choice can be made, it should always be large, lofty, quiet, and well-ventilated. If the patient must be in a small room, this great disadvantage must be compensated for by attending, in every possible way, to the ventilation. Many object to open windows; but there is no danger whatever, if only care be taken to avoid draughts, and the occurrence of a chill upon the patient's surface. All experience teaches us that every sick-room should have an open chimney, and further, that ventilation can be only properly effected by open windows. In cases where an open window in the room cannot be borne, it is often desirable to ventilate the room by means of air transmitted through an open window in the adjoining room. (See AIR, HOUSES, VENTILATION; BED, BEDROOM; ETC.)

Exposure to light.—All creatures, whether animal or vegetable, turn themselves joyfully to the light, and especially for growing children, light is almost as essential as fresh air. In addition to light and air, a good view from the window is a great advantage.

Of course, in many cases where there is great nervous excitement, in fevers, cerebral diseases, etc., as well as in many affections of the eye, light for a time must be partially, if not entirely, excluded. This can, however, always be readily done, by means of a blind of a green, or still better, of a slate color, which can be pulled up or down at pleasure. For all chronic diseases, and indeed, it may be said, for almost all diseases, with the few exceptions above named, an abundant supply of light is of the first necessity.

Quiet.—How often does it happen that a doctor leaves his patient with the injunction that he is to be kept perfectly quiet, to which the patient assents, and the nurse promises obedience: and yet, no sooner

is the doctor's back turned, then the sick-room, instead of being sacred and unmolested, is made the scene for the reception of a levee, or for the transaction of all manner of domestic business. How often do troops of sympathizing friends force their way into its precincts, and each in his turn require to know the nature of the disease, and of the treatment which is being carried on, relating, at the same time, their own wearisome experiences of what they fancy to be precisely similar cases, and contrasting and commenting freely upon the different plans pursued, with the effect, perhaps, of not only grievously fatiguing the patient, but of filling his mind with groundless anxiety and alarm. It is, or it ought to be, quiet sufficient to prevent such intrusions merely to say, that all visitors are prohibited by the medical attendant. The physician should leave a written paper to be shown to visitors. But there are a great many other respects in which the patient is to be kept quiet and undisturbed. Everything connected with the arrangements for the patient's comfort, where practicable, should be done outside the sick-room, so that he may not be annoyed by any arrangements of a noisy character which can be avoided. The very least sudden or unwonted noise may alarm and seriously injure a patient suffering from nervous disease, and any noise which suddenly wakes a patient out of sleep does him real harm.

It is not the absolute loudness of a noise which is injurious, but there are some noises which are exceedingly irritating, especially to the excitable ears of a sick person. Such are all rustling of dresses, whisperings, shakings, rattlings, jarrings of all kinds, the creaking of doors or of shoes, and the rattling of windows; the jarring tread of people overhead, or running up and down stairs, is frequently a source of great irritation to the sick man, who will tell you that he feels every step go through him.

The walls of the sick-room.—Green papers are to be avoided, as many of them contain arsenic, and the exhalations from them being breathed night and day by the patient, may give rise to poisonous symptoms. Secondly, papers which have been put on with bad size, or which have a nasty smell, are noxious in the extreme. A room, the walls of which are oil painted, and which can consequently be well dusted or washed, is perhaps the most suitable that can be found in a private house.

Carpets.—Were it not that it is desirable to keep the sick-room as quiet as possible, we should recommend that carpets should be altogether abolished from it, as they afford a nidus for the accumulation of morbid poisons. If neither carpet nor matting is used, light shoes or slippers must be worn by the attendants.

Temperature of the sick-room.—In many diseases of the chest, as, for instance, inflammation of the lungs, cold air not only increases the discomfort of the patient, but makes the cough worse, and aggravates the disease. Now it is not safe to trust to our own feelings as a guide by which the temperature of a sick-room can be regulated: therefore, a thermometer placed at a distance from the fire ought to be frequently consulted, and the temperature should be kept up to at least 60° Fahr. But whilst the room is kept warm, the bed-clothing of the patient must be regulated accordingly (and this requires particular attention in the case of children), since it would be extremely injudicious both to keep the room warm and to heap blankets upon the patient. A warm air and a comparatively light covering to the bed, are what is required. However warm the room may be, or appear to be, the patient should always have a loose, warm dressing-gown at hand, to be put on when he leaves bed, so that perspiration may not be suddenly checked. As a general rule, it must be remembered that infants and old persons require much more artificial external warmth than adults, especially when sick. New-born children are said to require a temperature of from 65° to 70° Fahr., and old people (with few exceptions) are said to require a still higher amount. Healthy, well-clad, and well-fed adults will bear a degree of cold five or ten degrees lower without any inconvenience; while some people seem to have an extraordinary power of adapting themselves to different temperatures. It is probable that, in some acute diseases of a febrile character, attended by great heat of skin, a low temperature, with a current of cooling air passing over the body, is of decided advantage; and this would seem to be proved by the fact that cases of fever treated in tents during great epidemics have generally done well. Most medical men seem to be agreed that in convalescence from all kinds of diseases there is great susceptibility to, and intolerance of cold, so that it is often desirable to keep a convalescent at a higher temperature than when he was the subject of acute disease.

As to the different methods of heating the sick-room, there can be no doubt that the common grate with an open chimney is by far the best and healthiest.

The air of the sick-room, generally, should not be too dry; but in some special instances, it is desirable that the patient should breathe a warm and moist atmosphere. This may be done very simply in a variety of ways. Perhaps the simplest of all is to allow the steam of a common kettle to diffuse itself throughout the room. Stoves are very objectionable for the sick-room; but where they are used, special attention must be paid to keep the atmosphere moist. (See HOUSES, THERMOMETER, BED-ROOM, BEDS, CHILDBED, CHILDREN, CONVALESCENCE; AGE,

OLD ; AIR, VENTILATION, FEVER, COOKERY FOR THE SICK, and all the individual articles on the various diseases throughout the work.)

SIDE, PAIN IN THE, *side* [Ang. Sax. *side*]. This very common affection arises from a great variety of causes. If situated high up, in the region of the chest, it may be occasioned by inflammatory affection of the lungs, but in this case will be accompanied with more or less fever, and other symptoms indicative of the disorder. It may, however, be caused in the same situation, by a kind of rheumatism, or neuralgia of the muscles connected with the ribs. In this form there is not, generally, fever, and the usual signs of affection of the lungs are absent; the pain, moreover, is much more liable to aggravation by pressure externally, and by slight movement, than that of inflammation of the lungs. The affection requires, chiefly, the local treatment of rheumatism (see RHEUMATISM); bran poultice, and anodyne and turpentine liniment. A mustard plaster is a good substitute in the absence of liniments. The above pains may of course occur on either side of the chest. Pain on the right side, lower down, may be owing to affection of the liver (see LIVER COMPLAINT), on the left side to affection of the spleen. (See SPLENITIS, SPLEEN.) Pain on the left side, however, often occurs as a sympathetic affection, sometimes of the heart or lungs, in either sex. It is most common in females, and is then very often sympathetic of disorder, functional, or otherwise, of the womb. Any person becoming the subject of continued pain in the side, should have the cause investigated by a medical man.

SIDE-SADDLE FLOWER. (See SARRACENIA PURPUREA.)

SIGHT. (SEE EYE, VISION.)

SIGNS OF A LONG LIFE. (SEE LONGEVITY.)

SILK UNDERCLOTHES. (SEE CLOTHING.)

SILK-WEED. (SEE ASCLEPIAS.)

SILPHIUM GUMMIFERUM, *sil'-fe-um gum-mif'-e-rum*, or rosin weed, a perennial plant found growing throughout the Western States. The root is the part used in Medicine. It is tonic, diaphoretic, and alterative, and has been highly recommended in dry, obstinate coughs. It has quite a reputation as a diuretic, and is used in dropsy and asthma. Dose: of the fluid extract, 20 to 40 drops; infusion, $\frac{1}{2}$ to 2 fluid ounces, three or four times a day. (SEE INFUSION.)

SILVER, *sil'vur* [Ang.-Sax., *seolfer*, *sylfor*], symbol Ag. (Lat. *argentum*), equiv. 108, spec. grav. 10.53. It fuses at about 1,873° Fahr. The nitrate of silver is made by dissolving silver in strong nitric acid. (SEE NITRATE OF SILVER.) There are three oxides of silver, the suboxide, the protoxide, and the peroxide. The protoxide has the same general medicinal effects as the nitrate, without being escharotic, and

is a valuable astringent in diarrhœa. Dose, $\frac{1}{2}$ to 2 grains, in form of pill.

SIMABA CEDRON, *sim-a'-ba se'-dron*, or cedron seed. A remedy lately introduced from New Grenada. It is said to be a valuable tonic, antiperi^odic, and antispasmodic. Recommended in malarial diseases, spasms of the stomach and bowels, dyspepsia and neuralgia. Dose, of the fluid extract, 1 to 8 drops, three times a day.

SIMARUBA EXCELSA, *sim-a'-ru'-ba ek-sel'-sa*, or quassia. A large tree growing in the West Indies, and belonging to the Nat. order *Simarubaceæ*. The wood of this tree furnishes the quassia of commerce. It is a bitter tonic and stomachic, febrifuge and anthelmintic; it is free from all constipating properties, is used in remittent fever, and in ague, likewise in dyspepsia, and debility from exhausting diseases. The infusion is made by steeping 3 drams of the rasped wood in 1 pint of cold water for twenty-four hours. Of this, $\frac{1}{2}$ a wine-glassful may be taken, three times a day, either alone or with a cup of ginger-tea. A strong decoction of quassia, well sweetened with brown sugar or molasses, is an effectual fly destroyer, and certainly preferable to the poisonous articles generally used for this purpose.

Dose: of the fluid extract, $\frac{1}{4}$ to 1 teaspoonful; tincture, $\frac{1}{2}$ to 2 teaspoonfuls; powder, 30 grains; solid extract, 3 to 5 grains, three or four times a day.

SINAPIS, *se-na'-pis* [Lat.], mustard, a genus of the Nat. order *Crucifereæ*. Flour of mustard is used as a stimulant, diuretic, and emetic; externally, as an irritant and rubefacient. (See MUSTARD.)

SINAPISM, *sin'-a-pizm*, a mustard plaster or poultice. (See MUSTARD, COUNTER-IRRITATION.)

SINGING, *sing'-ing*, is open to the same objections, to the delicate chested, as reading aloud, to the remarks on which the reader is referred. (See READING ALOUD, VOICE.)

SINGING IN THE EAR. (See EAR, DISEASES OF THE.)

SINKING, *sink'-ing*, the sensation of sinking at the pit of the stomach, is a nervous one, generally connected with disordered digestion, and often with overloaded bowels. Persons are too apt to have recourse to stimuli for its removal, which would often be better effected by the use of an aperient, and by regulation of the digestive organs. (See DYSPEPSIA.)

SITZ-BATH, OR HIP-BATH. (See BATHS AND BATHING.)

SKATING. (See EXERCISE.)

SKELETON. (See ANATOMY, BONES.)

SKIN, *skin* [Ang.-Sax. *scin*], is that membrane of variable thickness which covers the whole body externally, and extends inwards into all

the natural openings, where it changes its properties, becoming soft and moist, and hence known as mucous membrane. The skin is generally described as composed of three layers,—the *cuticle*, or scarf-skin, the *rete mucosum*, and the *cutis vera*, the last being the most internal. The *cutis* (*dermis*), or true skin, consists of two layers, of which the deeper is called the *corium*, and the more superficial the papillary layer. The corium is composed of numerous fibres closely interlaced, and forming a smooth surface for the support of the papillary layer. It varies in thickness, being, as a general rule, thick on the exposed parts and thin on the protected. The papillary layer is soft, and formed by numerous papillæ, which cover its whole surface. It contains the expansions of the sensitive nerves. The *rete mucosum* (mucous network) lies immediately over the *cutis*, and in some measure diminishes the inequalities of the surface, being thicker between the papillæ and thinner on their summits. It is composed of minute nucleated cells, and is almost pulpy in consistence. It is very slightly developed in the white races, but is very distinct and thick in those that are darker, the cells, which are filled with a pigment, being that which gives the dark color to their skin. The *cuticle*, scarf-skin, or epidermis, is a disorganized scaly substance, serving to protect from injury the more delicate *cutis*. It is thickest on the most exposed parts; and on the palms of the hands and soles of the feet it consists of several layers. The skin performs various important functions. It is the seat of common sensation, and is furnished with numerous pores or openings, which give passage to the sweat and other exhalations. (See ABLUTION, BATHS AND BATHING, ABSORPTION, HAIR, SCALP, NAILS; SKIN, DISEASES OF THE; DESQUAMATION.)

SKIN BOUND. This is an affection, peculiar to infancy, originating in chronic inflammation of the cellular membrane. The whole surface of the body swells and becomes hard, and the skin is cold and tightly bound. It may be relieved by warm baths, and gentle laxatives.

SKIN, CARE OF THE. (See ABLUTION, BATHS AND BATHING, SKIN; SKIN, DISEASES OF THE; SCALP, FLESH BRUSH, HAIR GLOVE.)

SKIN, DISEASES OF THE. Very various classifications of skin diseases have been made by different authorities on the subject.

THE EXANTHEMATA, OR ERUPTIVE FEVERS, include *measles*, *scarlet fever*, *small-pox*, *cow-pox*, and *chicken-pox*, some of the most important affections connected with the skin, which are fully noticed under their separate articles. Many other eruptive diseases are accompanied with febrile symptoms, but not of such marked peculiarity and uniformity as those which characterize the above; some authors, however, include in the class of eruptive fevers, erysipelas and erythema, nettle-rash and rose-rash (which see).

NETTLE-RASH cannot be better described, than as an eruption which closely resembles nettle stings, both in appearance and in the sensations it gives rise to. When acute, it is generally accompanied with more or less fever.

Causes.—The nettle-rash, in almost all cases, arises from disorder of the digestive organs, caused either by indigestible food, or in some persons by particular kinds of food. Kernels or seeds, such as almond, peach, etc., which contain prussic acid, seem especially apt to cause nettle-rash, and in some individuals even the pits of an apple have been known to produce the disorder. Fish, particularly shell-fish, also bring it on, or mushrooms; also certain medicines, such as turpentine; teething, hurry and agitation of mind in adults, and other irritations, also give rise to nettle-rash.

Treatment.—The generally known causes of this affection, indicate the remedy—the removal from the alimentary canal of offending matters. If there is tendency to nausea, and if the eruption appears soon after a meal, an emetic is the appropriate remedy, but whether this is given or not, there should be given an aperient. As acid in the bowels often accompanies the condition, a dose of magnesia with rhubarb is very suitable, or some other antacid may be had recourse to, and, afterwards, castor-oil. External remedies are comparatively of little service in the acute forms of nettle-rash. A lotion composed of carbonate of ammonia and sugar of lead, of each 1 dram, in $\frac{1}{2}$ a pint of water, will give relief. Dr. Watson recommends flour dusted over the surface. If nettle-rash takes a chronic form, that is, continues, and keeps recurring, after the use of such mild aperients as recommended above, and after regulation of the diet, the case should be seen by a medical man.

ROSE-RASH, OR SCARLET-RASH, occurs both in children and adults, in the form of rose-red patches, of various sizes, somewhat resembling measles in many cases, but of a redder hue. The disease is generally accompanied with some slight constitutional disorder or fever, but the symptoms differ from those which accompany measles. It is devoid of danger, and generally subsides after the administration of a simple aperient. If either rose-rash or nettle-rash are thought to be connected with teething, the gums should be scarified.

A class of skin diseases are called *papular*; they consist essentially, of the elevation of minute papulæ, or points, upon the surface; to this class of diseases belongs the red gum, of infants (which see); also, two other diseases named lichen and prurigo (which see), which are both extremely troublesome, from the intense itching with which they are accompanied, and the obstinacy with which at times they resist treatment. The affection named prickly heat (which see), is a species of lichen.

The *vesicular* class of skin diseases includes chicken-pox and cow-pox (which see), which also may be classed with eruptive fevers, also shingles (which see) and similar herpetic eruptions. Eczema (which see) is one of the vesicular eruptive diseases; crusta lactea has its frequent site upon the scalp and face (see SCALP.) The class of pustular eruptions (see PUSTULES), also comprises various scalp diseases. In many of the affections of this class, however, the pustular eruptions extend over various portions of the body.

The class of *bullæ* are characterized by the development of blebs or small blisters, which resemble those occasioned by a scald, or by the use of a common blister. This form of skin disease is generally associated with great debility of constitution.

The *scaly* diseases of the skin are many of them extremely obstinate, and sometimes resist every form of treatment. (See LEPROSY, ETC.)

Tubercular diseases of the skin are equally difficult to get rid of. Mother-marks, freckles, etc. (which see), are all included in the category of skin affections.

No description could possibly enable an unprofessional person to distinguish one chronic skin disease from another, nor would it answer any good purpose if the knowledge could be imparted. These affections are, in a majority of instances, indicative of some peculiar disordered condition of the blood, or of the digestive processes, primary or secondary, which require the strictest investigation of a medical man, and, probably, a long continued course of treatment—even under the best directed remedial measures, they often prove intractable.

It has been stated that the majority of skin diseases are of constitutional origin, and such is the case; some, however, are not so. Itch (which see), probably, is simply due to the presence of the insect; and the form of skin disease—eczema—(see ECZEMA, IMPETIGO) from which grocers, bakers, and others suffer from handling flour, sugar, etc., is undoubtedly local. (See ACNE, IMPETIGO, ECTHYMA, SCALD-HEAD, PRURIGO.)

SKULL, *skul* [Lat. *cranium*], is that hard, bony case which encloses the brain and forms the head. (See ANATOMY, FRACTURES.)

SKULL-CAP. (See SCUTELLARIA LATERIFLORA.)

SKUNK CABBAGE. (See SYMPLOCARPUS FÆTIDUS.)

SLEEP, *sleep*. Sleep may be defined as that state of natural unconsciousness, in which the voluntary powers are in a condition of insensibility, whilst the involuntary functions of nutrition, secretion, etc., are going on, increased, diminished, or unaltered, according to circumstances.

It is often asked: "Is it not the same thing whether I sleep in the

day or the night, so as I get enough?" It is not the same thing. Independent of the argument that the natural laws of our constitution can never be infringed with impunity, and that man cannot, without injury to health, spend those hours in sloth and sleep, during which he ought to be active under the sanative influence of diffused daylight, experience has long testified, that during the night, many sources of disease act more energetically upon those exposed to them.

As, however, in northern countries, in winter, the term of daylight is too considerably curtailed, and the hours of darkness too prolonged, to permit of their all being spent in sleep; it becomes a question which portion of the latter may most advantageously be devoted to wakefulness, under the influence of artificial light. Experience has proved, that to rise early and spend the morning hours by artificial light, is not by any means so salutary a custom, as to add to the latter part of the day by the same means. This is probably, in part, due to the greater activity of the nervous system in the after-part of the day, causing the absence of the stimulus of the sun's light to be less felt.

The amount of sleep required by different individuals varies greatly; as already stated, the infant requires the most, sleeping at least twenty hours out of the twenty-four. The hours of sleep which are requisite, diminish up to adult maturity, when from six to eight hours is the average requirement during the most active periods of life. There are, indeed, instances of persons who could do well with a much smaller average of sleep—four, three, two hours, or even less; but these are exceptional instances, and the individuals have generally been persons of strong constitutional powers. The extension of the hours of sleep beyond the term of eight, or at least nine hours, is generally the result of habitual indulgence.

Many of the external conditions requisite for sound and healthy sleep having been noticed under BED and BED-ROOM, it is unnecessary to repeat them here; it may be added, that no portion of clothing which tends, either in the way of wristband or of neck fastening, to confine in the least degree, should be worn. Especial attention should be directed, especially in the case of children, to the injurious effects of sleeping with mouth or head covered over with the bed-clothes. The practice is a common but most hurtful one.

In the above remarks, sleep has been considered as a natural healthy process, but sleep is often occasioned by excessive use of alcohol, or by narcotic drugs, by the action of heat, or by the depression of extreme cold; it may result from overfulness of blood, from deterioration of the vital fluid, or from chlorotic or anæmic conditions of the system. (See CHLOROSIS.) In such cases, although the powers of the body are in

some degree recruited by the sleep, it is not followed by the same feelings of health as the natural sleep of the properly but not over-fed—well-exercised, but not exhausted—worker of either mind or body, provided the worker of the mind neglect not the physical exercise.

Sleeplessness arises from various causes. It is often a distressing concomitant of old age (see AGE, OLD), but mental causes, anxieties, excitements, distresses, most frequently give rise to it, and especially intellectual exertion of the mind late in the evening, and just before retiring to rest. Want of due physical exercise also occasions sleeplessness; it is the result of dietetic errors, either eating heavy meals too late in the evening, retiring to rest without sufficient nourishment, and especially is it caused by strong tea or coffee taken at a late hour, in some people at any hour. Early rising, moderate attention to diet, and moderate exhaustion of both body and mind by exertion, ought to be the means tried to bring back the soft restorer. Sometimes, the mere alteration in the hour of a meal, a biscuit before retiring to bed, instead of going with an empty stomach, or some apparently trifling alterations in habits, is all that is requisite as a corrective.

DISTURBED SLEEP, NIGHTMARE.—*Disturbed sleep* is almost a constant attendant upon disorder of the digestive organs, either as exhibited in mere restlessness, or unpleasant dreams, or in the more aggravated form of nightmare, which is generally considered to depend upon impeded respiration and circulation within the chest, causing those disagreeable sensations connected with the condition, of which all must at times have been conscious. It is probable that the uncomfortable sensation in the chest, in the first place gives rise to the “suggestive dream.” Nightmare, if of frequent occurrence, may depend on disease connected with the heart or circulation, but more usually it is the result of causes much more easily removable, such as indulgence in heavy suppers, or excess of food generally—in fact, of indigestion—mental irritation, great fatigue, or lying in an uneasy position. Disturbed sleep in children is very common, taking either the form of moaning or restlessness, with grating of the teeth, or talking; of awaking suddenly, frightened and screaming; or of getting out of bed, when it becomes somnambulism or sleep-walking. The excitability of the nervous system in children renders them liable to be thus affected by even slight disorders of the bowels, and especially by worms, etc.; in such cases, therefore, it is always right to make sure that nothing offends in this way, by clearing out the canal by means of an active purge. If the affection does not seem to depend on disorder of the bowels, so much as upon general excitability, everything in the way of mental excitement which can increase this, must be avoided; cold bathing of the head every morning, and the cold douche to the back

should be used, and the nervous system tired before bed-time by active but not exhausting exercise.

Somnambulism, or *sleep-walking*, in adults, belongs to the class of mental, or rather psychological, phenomena not yet generally understood; it evidently resembles, if it is not identical with, the mesmeric condition of which some, and generally the same class of persons, are susceptible. Where a tendency to sleep-walking does exist, it is perhaps scarcely requisite to remark, that every means of guarding the person, so unfortunately affected, from accident, should be had recourse to.

Night is the natural season for rest; but in warm climates, a day sleep, both in man and animals, seems beneficial. In temperate climates, after the age of childhood, it is not an advisable custom. After any unusual fatigue, however, a short sleep before—not after—dinner, is often very serviceable. (See EARLY RISING, DREAMING; BED, BED-ROOM; DYSPEPSIA, DIET, REGIMEN, ETC.)

SLEEPLESSNESS. (See SLEEP.)

SLEEP-WALKING. (See SLEEP.)

SLIPPERY ELM. (See ULMUS FULVA.)

SLOE. (See VIBURNUM PRUNIFOLIUM.)

SLOUGH, *sluf*. A slough is a dead portion of tissue cast off from a living animal body. Bed-sores are the result of sloughing, more or less complete, of the skin and subjacent cellular tissue, occasioned by pressure. (See BED-SORES.)

SMALL-POX, OR VARIOLA, *smawl'-poks*, *va-ri'-o-la* [Lat. *variola*], like scarlet fever and measles, belongs to the class of eruptive fevers. Varioloid is the modified form of small-pox, which sometimes attacks those who have been vaccinated. It is marked by no secondary fever, and is not very dangerous.

Cause.—Small-pox is the effect of specific contagion, communicated by contact, or through the air. There is no disease of which the contagion is so sure, and which operates at a greater distance, than that of small-pox; but it rarely attacks the same individual more than once. The poison begins to manifest itself about twelve days after its absorption. It is not a little remarkable that a small quantity of the matter taken from a pustule and inserted beneath the skin of a healthy individual gives rise to a much milder form of the disease than would arise in the natural way, *i.e.*, by inhaling the contagious poison; and to this fact are we indebted for the great means of guarding against the disease. (See INOCULATION, VACCINATION.) Small-pox occurring in persons unprotected by inoculation or vaccination is fatal on the average to one in every three; whilst in those attacked after efficient vaccination the mortality is very small, probably not more than two or three per cent; still a

physician should always be called upon the first indication of this dread disease.

Symptoms.—Small-pox commonly commences with the usual febrile symptoms; as rigors, pain in the back and loins, great prostration of strength, followed by heat and dryness of the skin, a hard and frequent pulse, loss of appetite, pain in the epigastrium, with nausea, vomiting, headache, and sometimes delirium or convulsions. About the third day, an eruption of small, hard, red-colored pimples makes its appearance about the face and neck, and gradually extends over the trunk and extremities. The pimples gradually ripen into pustules, which, on the eighth day, generally begin to break, and crusts or scabs form, these last falling off in four or five days more. The severity of the disease varies much in different instances, but is almost always in direct relation to the quantity of the eruption. When the pustules are numerous, they run together, and form an irregular outline; when fewer, they are distinct, and of a regularly circumscribed circular form. The former is technically called *variola confluens*, the other *variola discreta*; the former being never free from danger, the latter seldom or ever dangerous. The most important difference between the two forms is in the secondary fever, which sets in about the eighth day of the eruption, or just when the maturation of the pustules is complete. It is slightly marked in the distinct small-pox, but generally very intense and perilous in most instances of the confluent; being the period at which death oftenest occurs. Both kinds are accompanied by sore throat, salivation, and frequently diarrhœa. A peculiar disagreeable odor also usually proceeds from the body of the patient. Like measles and scarlet fever, this disease frequently gives rise to others of a troublesome or dangerous nature, as glandular swellings, abscesses, pleurisy, loss of sight, consumption, etc.

Treatment.—The simpler cases of small-pox, unattended by much eruption, scarcely require any further treatment than confinement of the patient to the house, generally to bed, the exhibition at the commencement of a dose of laxative medicine, and, until the eruption appear, of a diaphoretic. One tablespoonful of spirit of mindererus, every two hours, will be the best. In more severe cases, there are individual symptoms of an unfavorable nature not unlikely to be developed, and these must be met. The imperfect filling or maturation of the pustules is generally accompanied by a low form of fever, requiring the use of stimulants—wine and brandy; these must, of course, be administered with great caution. When the febrile excitement, after the filling of the pustules (about the ninth day), runs high, the use of opium alone, or with a little antimonial wine, often succeeds in allaying the general disturbance, and

particularly the wakefulness, restlessness, and even delirium which accompany it. It may be given thus: 10 drops of laudanum, with 30 drops of antimonial wine, in $\frac{1}{2}$ an ounce of water, every three or four hours, until rest follows. In all stages, if the patient present a sunken look and the pulse be feeble, the employment of stimulants is indicated.

The *sarracenia purpurea*, or pitcher plant, was introduced some few years ago as a remedy in this disease, but it has not proved itself worthy of the early reputation it acquired.

To prevent the itching over the skin in the early and later stages of the eruption, various applications have been recommended: perhaps the simplest, as well as best, is olive-oil gently smeared over the face by means of a camel-hair pencil. For the same purpose, and as likely to prevent the occurrence of pitting, at least to the full extent, a solution of nitrate of silver (2 drams to the ounce of distilled water) has been recommended to be applied from time to time. Nothing leads more certainly to the deformity, which it is so important, if possible, to avoid, as the picking by the patient of the pustules during their later stages. In the instance of children, it is well to prevent this self-mutilation by tying the hands, or placing them in bags.

The application of collodion to the face and hands, is said to prevent pitting. Opening each pustule with the point of a lancet, and touching it with the solid nitrate of silver; the application of a mercurial plaster, smearing the face with blue ointment or sweet-oil, or with powdered charcoal made into a paste with fresh lard or butter, free from salt, are various methods, more or less effectual for preventing the pitting which is so much dreaded in this disease.

Preventive treatment.—Vaccination is, of course, the great method of prevention, and in many places is made imperative by law. When the disease is in a neighborhood, the cases should all be completely isolated. The nurses should, if possible, be parties who have had small-pox, and they, as well as all clothing, bedding, furniture, and utensils, should be treated as in strict quarantine.

All the slops and discharges from the patient should be immediately emptied, the utensil cleansed with carbolic acid water, 1 ounce to the gallon of water, and the receptacle, as well as all outhouses and closets, be thoroughly disinfected by a mixture, composed of 4 pounds of green copperas in 3 gallons of water, to which 1 ounce of carbolic acid may be added. After recovery of the disease, the house, furniture, and such of the bedding and clothing as it is not deemed necessary to destroy, may be fumigated by burning $\frac{1}{2}$ a pound of sulphur, in some iron vessel; strict personal attention and household cleanliness must be

observed by those who would escape, and above all, breathe plenty of pure fresh air. (See VACCINATION, BROMO-CHLORALUM, DISINFECTANTS, FEVER.)

SMALL-POX PLANT. (See SARRACENIA PURPUREA.)

SMALL SPIKENARD. (See ARALIA.)

SMARTWEED. (See POLYGONUM PUNCTATUM.)

SMELL. (See NOSE.)

SMELLING SALTS. (See AMMONIA.)

SMELLING SALTS, POISONING BY. (See ALKALIES, POISONING BY.)

SMILAX, *smi'-laks* [Gr.], or sarsaparilla, the typical genus of the Nat. order *Smilacæ*. The roots of several species or varieties constitute the sarsaparilla of the Materia Medica. The kind most valued is that known as Jamaica sarsaparilla, obtained from the species *S. officinalis*. It is not the produce of Jamaica, but of Central America and the northern parts of South America.

Sarsaparilla is an alterative, although stated by some to possess diuretic, diaphoretic and emetic properties. It possesses a high reputation as an alterative, in the treatment of chronic rheumatism, scrofulous affections, cutaneous affections, and inveterate syphilis. It is highly advantageous in the treatment of that shattered state of the system which oftentimes follows an imprudent use of mercury in syphilitic affections, as also in that depraved condition of the general health to which it is difficult to apply a name. The decoction is formed by digesting for an hour 2½ ounces of the root, cut transversely, in 1½ pints of boiling water, then boiling for ten minutes, cooling, and straining to make 1 pint. Dose: of the fluid extract, 1 teaspoonful; solid extract, 5 to 20 grains; infusion or decoction, 2 to 4 fluid ounces; syrup, ½ to 1 fluid ounce.

SMOKING. (See TOBACCO.)

SMOOTH ALDER. (See ALNUS RUBRA.)

SMOTHERING. (See ASPHYXIA, SUFFOCATION, ETC.)

SNAKE-HEAD. (See CHELONE GLABRA.)

SNAKE-ROOT, SENEKA. (See POLYGALA SENEGA.)

SNAKE-ROOT, VIRGINIAN. (See ARISTOLOCHIA.)

SNAKES, BITES OF. (See BITES AND STINGS.)

SNEEZING, *sneez'-ing*, is a convulsive or spasmodic effort, the result of reflex action, originating in irritation of the lining membrane of the nostril, by which air is forcibly sent through the passage so as to expel any cause of irritation. Sneezing is one of the first symptoms of cold, of influenza, of measles, and of diseases which involve the air-passages. Continued sneezing is a spasmodic affection said to be

relieved by emetics. (See CATARRH OR COMMON COLD, INFLUENZA, MEASLES, ETC.)

SNUFF. (See TOBACCO.)

SNUFFLES, *snuf'flz*. In the young child, a common cold in the head often passes under the vulgar name of "the snuffles." When respiration through the nose is greatly interfered with, owing to the thick incrustations round the nostrils, the child is unable to suck; and if applied to the breast, it will scarcely have seized the nipple when a threatening of suffering compels it to desist.

Treatment.—The child should be taken from the breast and fed with the spoon. If the fever be marked, a few drops of the mindererus spirit, with 1 or 2 drops of ipecacuanha wine, or syrup, may be given at intervals of a few hours. A little castor-oil should be given in order to move the bowels. If the child become low and depressed, a little wine may be required. To so young a child, wine is best administered in the form of white wine whey (1 tablespoonful of wine with 3 tablespoonfuls of new milk are boiled together, and then strained). Local applications to the nose are sometimes beneficial: of these, nitrate of silver (5 grains to the ounce of distilled water), and alum (20 grains to the same quantity) are the best. (See CATARRH OR COMMON COLD, CHILDREN.)

SOAP, *sope* [Ang.-Sax. *sape*]. Hard, or white castile soap, is, in large and frequent doses, very efficient in removing gall-stones. Combined with rhubarb, it is useful in dyspepsia attended with constipation or torpor of the liver. Dose, 5 to 15 grains. Soap plaster is formed by adding 6 ounces of hard soap, and 1 ounce of resin, to 2½ pounds of lead plaster, melted by a gentle heat, and then evaporated to the proper consistence with constant stirring. Soap of any kind is an antidote in poisoning by the mineral acids, and might be used in the absence of better remedies. (See PLASTERS.)

SOAP PLASTER. (See SOAP.)

SOAPWORT. (See SAPONARIA OFFICINALIS.)

SODA, *so'-da*. In Chemistry, NaO, the protoxide of the alkaline metal sodium (see SODIUM). Soda resembles potash in its medicinal qualities. *Tartrated* soda forms a mild, cooling purgative for delicate stomachs. Dose, 2 to 4 drams. The *arseniate* is used in skin diseases, and other cases where arsenic is indicated. Dose, $\frac{1}{16}$ to $\frac{1}{8}$ of a grain. The *bicarbonate* is useful in dyspepsia, gout, and lithic deposits. Dose, 10 to 30 grains. For *effervescing solution*, or soda-water (see EFFERVESCENCE.) The *carbonate* is used chiefly to counteract acidity of the stomach in dyspepsia, etc. Dose, 5 to 30 grains. A solution of the *bicarbonate* of soda is a very useful remedy in the treatment of burns and scalds.

Salicylate of soda is used in the treatment of diphtheria and rheumatism. Dose, 5 to 8 grains, every four hours. The *phosphate* is a mild purgative, well suited to children and persons of delicate stomach. Dose, $\frac{1}{4}$ to 1 ounce. The *sulphate*, popularly known as Glauber's salt, is an excellent cooling aperient in doses of $\frac{1}{4}$ to 1 ounce. (See SODIUM, CITRATE OF SODA, BORAX, HYPOPHOSPHITES, LABARRAQUE'S DISINFECTING FLUID, SALT.)

SODA-WATER. (See EFFERVESCENCE.)

SOFT CANCER. (See FUNGUS.)

SODIUM, *so'-de-um*, in Chemistry,—symbol Na (natrium,) equivalent 22.97, specific gravity 0.972, fusing point 194° Fahr.,—the alkaline metal of which soda is the oxide. It occurs in large quantities in nature, chiefly in combination with chlorine, as sea salt. The two salts, bromide and iodide of sodium, occur sparingly in sea-water, and in the ashes of sea-plants. They are the principal commercial sources of iodine and bromine, and are used sometimes as substitutes for bromide and iodide of potassium. Dose, 5 to 20 grains of each. The chloride of sodium constitutes the rock-salt of commerce, or common table-salt. (See SODA.)

SOFTENING OF THE BRAIN, *sof'-fn-ing*, is, properly speaking, not so much a disease itself, as the consequence of certain morbid conditions. One form of softening is intimately connected with inflammatory action, and others are quite unconnected with such; the latter, while sometimes consequent upon the escape of blood from the proper vessels, may also occur as a gradual process, equally independent of that condition and of inflammation. Though not a consequence, softening of the brain is, in many instances, a forerunner of apoplexy.

The symptoms of softening of the brain are various, owing to the different positions in which it is found, as well as the particular action, inflammatory or otherwise, on which it depends. Gradually advancing palsy, with failure of the mental power, the latter manifesting itself in different ways, are among the chief symptoms.

The treatment of such affections will be under medical superintendence, and must include attention to the general state of the patient, with freedom from all anxiety, cares of business, and all kinds of excitement. (See BRAIN; BRAIN, DISEASES OF THE; BRAIN IN OLD AGE, APOPLEXY, PALSY, ETC.)

SOLANUM DULCAMARA, *so-la'-num dul-ka-ma'-ra*, or bitter-sweet. Commonly called woody nightshade, nightshade, scarlet berry, violet bloom, etc. It is a plant belonging to the Nat. order *Solanacée*, and is common in both Europe and North America. It is narcotic, alterative, diuretic, diaphoretic, and slightly tonic, but is now mainly confined to the treatment of cutaneous eruptions, particularly those of a scaly character, as lepra, salt-rheum, and scurf. Dose: of the fluid

extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 3 to 8 grains; of the decoction, 1 to 2 fluid ounces, three or four times a day. In large doses it is poisonous. (See POISONS, ETC.; DECOCTION.)

SOLDIER'S ITCH, OR CAMP ITCH, *solé'-jurz*. These are names given to an eruption of dry, small pimples, which appear generally on the outside of the fore-arms, legs and thighs, and give rise to an intolerable itching, always worse after retiring to rest. The parts affected should be washed daily for three or four days with soap and water, and then bathed night and morning with tar water, made by dissolving 1 tablespoonful of tar in $\frac{1}{2}$ pint of water.

SOLIDAGO ODORA, *so-lid'-a-go o-do'-ra*, or golden rod, a common perennial plant, found growing in most parts of the United States. The leaves are diaphoretic, carminative and stimulant, and are used in flatulent colic, and in convalescence from severe dysentery, diarrhœa, and cholera morbus. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 2 fluid ounces, three or four times a day. (See INFUSION.)

SOLOMON'S SEAL. (See CONVALLARIA MULTIFLORA.)

SOLUTION, *so-lu'-shun* [Lat. *solutio*; *solvo*, *solutus*, to loosen, to solve], is the disappearance of a solid body in a liquid menstruum or solvent.

SOLUTION, IODIDES OF ARSENIC AND MERCURY, OR DONOVAN'S SOLUTION, is a powerful alterative, and is particularly adapted to the treatment of syphilis or venereal diseases, cancerous diseases, nettle-rash, lepra, diseases of the scalp, and other obstinate cutaneous affections. A persistent use of this medicine for months is requisite. Sometimes it will occasion derangement of the stomach, confinement of the bowels, headache, nausea, mental disturbances, and even salivation, when it should be discontinued, and a purgative administered. Dose, 5 to 10 drops, in water, given three times a day. This is a medicine scarcely suitable for unprofessional hands.

SOMNAMBULISM. (See SLEEP.)

SOOT, *soot* [Ang.-Sax.], is a common remedy for the bowel complaints of children, and for colic. It is of the same nature as creasote, and is administered in the form of tea.

SOPORIFICS, *sop-o-ri-f'-iks*, substances which produce sleep. (See NARCOTICS.)

SORE MOUTH. (See NURSING SORE MOUTH, THRUSH, SALIVATION, STOMATITIS, CHLORATE OF POTASH, GARGLES.)

SORES. (See ULCERS, WOUNDS, DRESSING, GRANULATIONS, CLAY, ETC.)

SORE THROAT, *sore throte*, is not only a concomitant of other affections, such as scarlet fever, diphtheria, etc., but is one of the most frequent effects of common cold. (See CATARRH, OR COMMON COLD.)

Some persons are peculiarly liable to it. One of the simplest forms of throat affection from cold, is relaxation of the uvula. (See UVULA.) Perhaps on waking in the morning, the sensation of there being something in the throat which requires to be coughed up, is experienced, and along with this, tickling cough, from the uvula irritating the top of the windpipe. The condition is easily discovered by means of a looking-glass, the uvula appearing longer than usual. Frequently the affection passes off in the course of a few hours. If it does not, the use of a solution of chlorate of potash, or some other astringent gargle, will remove it. (See CHLORATE OF POTASH, GARGLES.)

Sore throat may be simply inflammation of the mucous membrane of the throat; there is an uncomfortable feeling of roughness or rawness about the fauces and tonsils, with some pain in swallowing, probably accompanied with symptoms of cold, shivering, etc. This form of sore throat may pass away in the course of a day or two without going further, or it may spread into the air-passages, causing cough and catarrhal symptoms. This form of the affection is often quickly relieved by the use of sal-prunella balls, one or two being allowed gradually to dissolve in the mouth, or by a gargle of chlorate of potash. It is generally best treated as a common cold—with the addition of hot bran or linseed meal poultices up the angles of the jaws, and the use of hot gargles of simple warm water or gruel. Mustard plaster and hartshorn and oil may be advantageously used at a later stage.

Ulcerated sore throat.—Local applications are of great service in the treatment; and specially the application of the solid nitrate of silver, or of the sulphate of copper in substance, or in liquid form by the atomizer. Five grains to an ounce of water would be the proper strength to use either of the above in this way. In the absence of the atomizer, attach a small piece of sponge to the end of a piece of whalebone, and apply the nitrate of silver in liquid form to the parts affected occasionally, but not too often. (See TONSILS.)

For other forms of sore throat, see QUINSY, CLERGYMAN'S SORE THROAT, DIPHTHERIA, SCARLET FEVER, CROUP, LARYNGITIS, ETC. (See also CATARRH, CHRONIC; FUR, GARGLES, BROMO-CHLORALUM, SAL-PRUNELLA, COLD FEET, COUGH, EXPECTORANTS, ETC.)

SOUR STOMACH. (See ACIDITY OF THE STOMACH, HEART-BURN, WATER-BRASH, DYSPEPSIA.)

SOUTHERN STATES, CLIMATE OF. (See CLIMATE.)

SOUTHERNWOOD. (See ARTEMISIA.)

SPANISH FLIES. (See CANTHARIDES.)

SPANISH NEEDLES. (See BIDENS BIPINNATA.)

SPASM, *spazm* [Gr. *spasmos*, from *spao*, I draw], is an involuntary

contraction of the muscles which is not disposed to alternate with relaxation; when the contractions alternate with relaxation, and are frequently and preternaturally repeated, they are called convulsions. (See COLIC, CONVULSIONS, CRAMP, ASTHMA, EPILEPSY, TETANUS, LOCK-JAW, SAINT VITUS'S DANCE, ETC.)

SPASMODIC DISEASES. (See TETANUS, LOCK-JAW, SAINT VITUS'S DANCE, SPASM, ETC.)

SPASM OF THE HEART, OR ANGINA PECTORIS. (See ANGINA PECTORIS.)

SPEARMINT. (See MENTHA VIRIDIS.)

SPECIFIC, *spe-sif'-ik*, is a term applied to a medicine which is known from experience to cure a particular disease or set of symptoms, the action by which it does so being unexplained. Thus, quinine is specific in ague and other periodic diseases—specific, at least, within certain limits.

SPECTACLES. (See VISION.)

SPECULUM, *spek'-u-lum* [Lat.], a surgical mirror, adapted to assist the examination of internal parts of the body.

SPEECH, *speetsh* [Ang.-Sax. *spræc*, *spræc*.] Distinctness of speech, or articulation, is so intimately connected with the full command and free movement of the tongue, that indistinctness is often a valuable leading symptom in the investigation of disease, especially of a nervous character.

Stammering in the speech cannot be said to be a disease, being rather a functional disorder; this is evident from the fact that under certain circumstances, a habitual stammerer does not stammer, and that cases have occurred in which most inveterate stammering has been completely cured by the exertion of the will. Moreover, stammering is often caused either by imitation in children, or by nervousness in both children and adults. This nervousness is often the result of debility, and of weak constitution—a fact which should not be lost sight of, for if such be the case, every means of strengthening should be used. (See CHILDREN, DEBILITY, ETC.) At the same time, whilst the general health is sustained, much may be done by checking children, and making them speak at all times slowly. Articulation is sometimes indistinct from the tongue being tied, that is, too much confined in its motions by its natural bridle or frænum. In early childhood it is very easily rectified.

SPERMACEI. (See CETACEUM.)

SPERMATORRHŒA. (See ONANISM, SEMEN, NOCTURNAL EMISSIONS, SALVIA OFFICINALIS, BUCHU, DAMIANA, STRYCHNOS NUX VOMICA.)

SPICE-WOOD. (See BENZOIN ODORIFERUM.)

SPIDER'S WEB. (See COBWEB.)

SPIGELIA MARILANDICA, *spi-jeel'-ya ma-re-lan'-de-ka*, or pink-root, known also by the common names of wormgrass, Indian pink-root, and star-bloom. It is a perennial plant belonging to the Nat. order *Rubiaceæ*, and grows in various parts of the United States. This plant is a well-known worm remedy, possessed of narcotic and cathartic powers. When a full dose is given at night, it is well to follow it by a purge in the morning. It is usually combined with senna, or some other cathartic, to insure its action on the bowels. In large doses, it is poisonous. The well-known worm tea, or spigelia compound, is composed pink-root, $\frac{1}{2}$ ounce; senna, 2 drams; savin, $\frac{1}{2}$ dram; manna, 2 drams. Mix, and infuse (see INFUSION) in 1 pint of water. Dose, 1 to 2 fluid ounces. Dose: of the fluid extract, $\frac{1}{2}$ to $1\frac{1}{2}$ teaspoonfuls; of the powdered pink-root, 1 to 2 drams.

SPIKENARD. (See ARALIA.)

SPINE, DISEASES AND INJURIES OF THE, *spine*.

Malformation of the spine.—The spine is liable to be the seat of a peculiar *malformation* at birth. This consists in the deficiency of the posterior portions of a certain number of the vertebræ, generally those of the loins, by which the membranes lining the interior of the spinal canal are left uncovered, except by the skin, both membranes and skin being distended into a livid-looking semi-transparent bag containing fluid. This peculiar malformation generally ends fatally, but not so invariably as to justify the child being left to its fate without an attempt to save it. This attempt can only be made by the surgeon.

Concussion of the spinal cord is not unfrequent, as a consequence of heavy falls on the feet, or of direct blows on the back. The usual symptoms are depression of the system, with loss of sensation and power of motion of the lower portions of the body, which either passes off in the course of a few days, or remains permanently, perhaps passing into disease. The speedy presence of a surgeon is requisite in every case of the accident in question. The best thing that can be done until aid is procured, is to place the patient as carefully as possible in the most easy position, and to keep him perfectly quiet.

Displacement of the vertebræ can rarely take place without extreme violence, and, even then, fracture generally accompanies the accident, except in the case of the upper vertebræ of the neck. Displacement is accompanied to a greater or less extent by injury to the spinal cord, and consequently by paralysis of the parts below; if the injury is high up, instant, or at least speedy death being the result. In the event of an individual surviving, for a longer or shorter time, all that others can do, till proper assistance is procured, will be to place the

person in an easy posture, to administer stimulants with due caution, and to endeavor to preserve the proper heat of the paralyzed parts, by friction and warm applications.

The spine is liable to various diseases, such as inflammation, apoplexy of the cord, softening, etc., the latter being not an unfrequent concomitant of epilepsy. Pain in the part, and disorders of the functions of sensation and motion, and convulsive twitching, are the most usual symptoms. It is not possible, that beyond temporary soothing measures, such as bran poultices, etc., unprofessional interference in such cases can be usefully employed. In cases of severe pain, however, opiates may be cautiously given till a medical man sees the case. In some forms of fever, and of lock-jaw, the spine is affected.

Functional disorder, and what is called irritation of the spine, are extremely common, especially in females, and are often at the root of the obstinate palpitations, and many of the nervous and hysterical derangements of the sex. In such cases, if the *back* be carefully examined, a *tender spot* may generally be discovered somewhere in the upper part of the spine, and often, when there is more than one tender spot, lower down. Such cases are generally connected with debility of constitution, and require the well-directed treatment of a medical attendant. The use of the tepid or cold douche down the spine, followed by friction with a rough towel or flesh-brush, does much to relieve in such cases, often more than counter-irritation. The general health requires attention, and, generally, tonics, quinine and iron, are called for. Exercise must be regular, but not carried to fatigue, which is injurious. In severe cases, repeated small blisters are sometimes useful.

Curvature of the spine is far from being uncommon; it is of three varieties—the angular curvature, lateral curvature, and curvature backwards. The first of these, *angular curvature*, is caused by disease—caries—of the bodies of some of the vertebræ themselves, which, permitting the bone to yield under the weight of the body, causes angular distortion at the seat of the affection. It usually occurs in children, and in young people of delicate, and especially of scrofulous, constitution. The first symptom of this disease may be the child wincing or crying out from sudden pain in some movement of the spine. If allowed to go on unchecked, very great deformity ensues, and the constitution is at length worn out. This form of curvature can only be properly treated under medical superintendence.

Lateral curvature is not, like the above, the result of disease, but is the mechanical effect of repeated and continual malposition of the body. It is the form of spinal curvature from which nurse-girls who are put at too early an age to carry heavy children frequently suffer; it is also the

affection met with among the pupils of injudiciously-conducted female schools. It of course is most liable to occur in weakly subjects, but may take place in any young person, who is compelled, habitually, to maintain the body, even without additional weight, in one position for any length of time (see EDUCATION). The causes of the above common deformity which have been pointed out, naturally indicate that the first step towards cure must be the removal of the producing cause. Such a course, with general tonic measures, rest of the body for a considerable portion of the day, equal exercise of the muscles connected with the upper extremities, and cold or tepid salt douche, with regular general exercise, will probably remove the tendency to curvature in incipient cases. If, however, deformity has made any progress, other and probably mechanical means, will be required for its removal, which can only be properly employed under medical direction.

The curvature of the spine from before backwards occurs in weakly children, and constitutes the stoop, or round-shoulder of the young. It is usually connected with general debility of constitution, which requires to be corrected by the ordinary means, the local deformity being relieved by the horizontal posture, by the moderate use of a back-board when the patient is of sufficient age, and by the douche, friction, etc. (See EDUCATION, SPINE, FRACTURES, ETC.)

SPINE—OR SPINAL, OR VERTEBRAL COLUMN [Lat. *spina*, a thorn], is a chain of twenty-four bones, called the vertebræ (see ANATOMY), so beautifully contrived and fitted to each other, that while they permit the most extensive motion of the trunk of the body, they at the same time preserve it—in man at least—firm and erect, and guard the spinal cord or marrow (see NERVOUS SYSTEM) against all but the violent injury. The spinal cord, thus guarded, is inclosed in the spinal canal, which is continued through the vertebral chain, from the head downwards, to and into the sacrum bone of the pelvis. (See ANATOMY; SPINE, DISEASES AND INJURIES OF THE.)

SPIRÆA TOMENTOSA, *spi-re'-a to-men-to'-za*, or hardhack, a common American shrub, known as steeplebush and meadow-sweet. The root, which is the part used in medicine, is tonic and astringent, and is peculiarly adapted for cases of debility. It is used in diarrhœa, and is an excellent remedy for the summer complaints of children. Dose: of the fluid extract, 4 to 20 drops; of the infusion, $\frac{1}{2}$ to 2 fluid ounces, three or four times a day. (See INFUSION.)

SPIRITS, *spir'-its* [Lat. *spiritus*], include alcohol and spirituous solutions of vegetable matters formed by simple mixture, by maceration, and by distillation. (See ALCOHOL, BRANDY, GIN, RUM, WHISKEY; STIMULANTS, ALCOHOLIC; ETC.)

SPITTING OF BLOOD. (See HEMORRHAGE, LUNGS.)

SPLEEN, OR MILT, *spleen* [Lat. *splen*]. The spleen is situated in the left hypochondriac region (see ABDOMEN.) It is of a spongy texture, and is capable of containing blood so largely, that its office has been supposed to be that of a blood reservoir. The spleen is liable to become greatly enlarged in cases of continued ague. (See AGUE, AGUE CAKE, SPLENITIS, ETC.)

SPLENITIS, OR INFLAMMATION OF THE SPLEEN, *sple-ni'-tis*, rarely occurs except accompanied by ague. It may be acute or chronic. The disease is marked by pain and swelling of the left side, followed sometimes by symptoms of dropsy. What is known as *ague cake* is enlargement or hypertrophy of the spleen. In the treatment, both bleeding and mercury must be avoided. In some parts, the following, known as *spleen mixture*, has proved very efficacious.

Take of Powdered jalap.....	One dram.
Powdered rhubarb.....	One dram.
Powdered calumba	One dram.
Powdered ginger.....	One dram.
Powdered cream of tartar.....	One dram.
Sulphate of iron.....	Ten grains.
Tincture of senna.....	One-half ounce.
Peppermint water.....	Nine and one-half ounces.— <i>Mix</i>

Of this mixture, 1 or 1½ ounce, is to be taken twice a day. When this fails, 5 to 10 grains of bromide of potassium, three times a day, will prove serviceable. (See SPLEEN.)

SPONGING, OR SPONGE BATH. (See BATHS AND BATHING.)

SPONGIO-PILINE, *spün'-je-o-pil-ine'*, is a fabric composed of sponge and wool felted together in three layers, and coated on one of its surfaces with India-rubber. When the soft or inner surface is moistened with water, it forms a substitute for the ordinary poultice. Moistened with liquor ammonia, it is stated to raise a blister in four minutes, being more efficacious than any other vesicant. (See POULTICE.)

SPOTTED FEVER, *spot'-ted*, a name often applied to typhus fever, cerebro-spinal meningitis, and to the plague. (See TYPHUS FEVER, CEREBRO-SPINAL MENINGITIS, PLAGUE.)

SPRAIN, OR STRAIN, *sprane*, this painful injury is the result of forcible overstretching of the ligaments of a joint. When a sprain has occurred, complete rest is the first necessity, accompanied by the soothing influences of fomentation and poultice (see FOMENTATION, POULTICE,) well and thoroughly made use of, from the very first; the early employment of the remedies doing much to alleviate the suffering. After the joint has been soothed for some days by rest, with poultices, and fomentations, it will be advisable to change these applications for a

bandage, which is to be kept wet with tepid water, lightly applied to the injured part, which, if agreeable to the feelings of the patient, may be enveloped in some warm material. (See BANDAGES.) As soon as it can be borne, friction night and morning, with the soap liniment or soap and opium liniment, will be found agreeable and serviceable. (See LINIMENT.) Kerosene and vaseline (which see) are also useful applications in sprains. Lastly, instead of the morning rubbing, the cold water douche—salt-water or sea-water is perhaps preferable to fresh: whichever is employed, it ought to be continued till the joint aches slightly, the after reaction being promoted by rubbing well with a towel.

SQUAW-ROOT. (See BLUE CONOSH.)

SQUILL. (See SCILLA MARITIMA.)

SQUINTING, OR STRABISMUS, *skwint'-ing* [Low Lat., from Lat. *strabo*, a squint-eyed person], when permanent, arises from contraction or permanent shortening of one of the “straight” muscles of the eye-ball. (See EYE.) The only effectual remedy is a surgical operation. This consists simply in cutting through the muscle, the contracted condition of which occasions the squint. It always requires the aid of a surgeon—who has made ocular surgery a specialty—for its performance, and he must decide as to the probability of its affording prospect of permanent cure. (See VISION.)

STAMMERING. (See SPEECH.)

ST. ANTHONY'S FIRE. (See ERYSIPELAS.)

STARCH, OR FECULA, *stürtsh*. Starch is one of the chief elements of nourishment derived from the vegetable kingdom for the support of animal life. Amid other examples, arrowroot is nearly pure starch.

The composition of starch is simple, that is to say, it is made up of carbon and water, or carbon and the components of water,—oxygen and hydrogen,—but it contains no nitrogen, or earthy matter. But though starch, and such-like compounds, such as sugar, gum, etc., cannot build up bone and muscle, they can protect them, they can furnish respiratory aliment, or fuel, and also, when not thus required, assist largely in the formation of fat. (See FOOD, ARROWROOT, BREAD, FAT, SAGO, ETC.)

STARVATION, *star-va'-shun*. Deprivation of food, either total or partial. When total deprivation of food has extended even to twenty-four hours—when partial deprivation has gone so far as to produce pain at the stomach, and marked debility—return to a proper supply of nourishing food must be very gradual; the stomach and its sources of nervous stimulation partake of the general depression, and are no more fit for much exertion than the rest of the body; consequently, food must be given in small quantity, and in such a form as will most easily enter the circulation, such as good broths, along with a small proportion of

alcoholic stimulant, very carefully given, and warmed. When partial starvation or continued deficiency of food has been in operation for some time, it lays the individual open to the attacks of epidemic and endemic disease, and, indeed, seems to be the exciting cause of disease, as observed in the Irish fever which followed the famine. (See ABSTINENCE, DEBILITY, FOOD, HUNGER, THIRST, COLD, ANIMAL HEAT, ETC.)

STATICE CAROLINIANA, *sta-ti'-se kar-o-lin-e-a'-na*, or marsh rosemary, also known by the common names seathrift, meadow root, ink root, sea lavender. It is a perennial belonging to the Nat. order *Plumbaginaceæ*. It is common to the salt marshes and Atlantic shores of the United States. The root is the part used, and contains a large percentage of tannic acid. It is powerfully astringent. In large doses it acts as an emetic, and in smaller quantities, as a powerful expectorant. It is said to be highly useful as a gargle in putrid sore throat, and in dysentery after the acute stage is passed. Applied externally, it is valuable in piles. Dose: of the fluid extract, 15 to 40 drops; infusion, $\frac{1}{2}$ to 1 fluid ounce, three or four times a day. (See INFUSION.)

STAVESACRE. (See DELPHINIUM.)

STELLARIA MEDIA, *stel-la'-re-a me'-de-a*, or chickweed, a biennial plant belonging to the Nat. order *Caryophyllaceæ*. It is common throughout the United States and Canada. It is a cooling demulcent. (See DEMULCENTS.) The infusion may be used freely. (See INFUSION.) The fresh leaves, bruised and applied as a poultice is very useful in indolent ulcers and acute ophthalmia.

STERILITY, OR BARRENNESS, *ster-il'-e-te* [from *sterilis*, barren], is the want of power to beget or bear a child, and hence applied to both male and female. To understand the causes of sterility it is necessary to have a knowledge of the laws of generation. The process of reproduction is one of the most interesting studies connected with the history of organized bodies, but for obvious reasons it cannot be fully presented in a work of this character. As a general rule, both young animals and plants are produced from the bodies of the elder, sustaining to each other the relationship of parent and offspring; there is, however, a theory that in some instances certain organisms are produced from inanimate substances without any similar organisms having preceded them. This is known as spontaneous generation; but its existence is discredited by the ablest physiologists of the present day, and the doctrine maintained, that plants and animals are invariably produced from parents of the same species existing previously. Two sets of organs are necessary for the performance of the function of reproduction, and by the union of the product of each of these sets, a new individual is produced. From belonging to the different sexes, these organs are

known as the male and female organs of generation, the latter producing a germ or egg which is capable of being developed into a new organism, and the former, the spermatic fluid, containing the zoosperms, which are necessary to vivify the germ and enable it to complete its development. In the human species, and all the higher animals, these two sets of organs are situated in different individuals, the male being characterized by the presence of testicles, and the female of ovaries. In all such, the conjunction of the sexes, and actual contact of the zoosperms and the germ, is absolutely necessary to the process of reproduction. The accessory organs of generation are, in the male, the penis, the vesiculæ seminales, and the prostate gland; and in the female, the uterus or womb, the fallopian tubes, the vagina, and the mammary gland. The generative apparatus in both the male and female remains in a state of inactivity from the time of birth until a period varying from twelve to twenty years of age, when it enters upon a period of functional activity, which continues in the female until the cessation of menstruation, and in the male, often, until advanced age. The reader will now be prepared to understand the causes of sterility.

The *male* is sterile:—

1. When from age, deformity, debility in the sexual organs arising from sexual abuse and excesses, intemperance, strictures, or other influences, he is incapable of performing his part in the sexual act.
2. When from congenital malformation, or acquired disease, such as inflammation of the testicle, from blows or falls, or as a sequel of parotitis or gonorrhœa, the testicle has been so injured as to destroy the vitalizing power of the spermatic fluid. Sterility in the male is, as a rule, a more hopeless infirmity than in the female; it is not as amenable to treatment.

The *female* is sterile:—

1. From causes which prevent the passage of the ovum or egg from the ovary, through the fallopian tube, to the cavity of the uterus; some previous inflammatory action of the fallopian tubes, or their fimbriated extremity, may conduce to this condition of affairs.
2. From causes which prevent the passage of the zoosperms from the vagina to the cavity of the uterus. These are:
 - (a) Malposition of the womb, a condition which may be remedied by the manual interference of a skilled physician.
 - (b) The presence of a large tumor in the cavity of the womb; many of these tumors can now be removed by the surgeon.
 - (c) The presence of endo-metritis, or inflammation of the lining membrane of the uterus; this also is a condition capable of being remedied.
 - (d) Abnormal curvature of the neck of the womb, and the presence of

tumors in the cervical canal. These are conditions which are often set right by surgical means.

(e) Abnormal condition of the secretions of the utero-cervical canal, causing the death, in a few hours, of the zoosperms. This deranged condition of the secretions is often found where there is every external appearance of perfect health. In most cases, both local and constitutional treatment is required.

(f) Small condition of the mouth of the uterus, so that the semen cannot enter it. This condition may be remedied by enlarging the orifice by surgical interference.

3. The absence of the ovaries, or vagina, and the total closure of the womb, will render the female incurably sterile.

The reader will see that most of these conditions described are improper for unprofessional treatment. In all cases of sterility, both in the male and female, the very best professional skill should be employed. (See MENSTRUATION, PREGNANCY, CHLOROSIS, SEXUAL EXCESSES, IMPOTENCE, HEALTH, ETC.)

STERNUM, *ster'-num* [Gr. *sternon*], the breastbone, an oblong, flat, irregularly-shaped bone, placed at the fore part of the thorax. It serves for the articulation of the seven upper or true ribs on each side, and is of use in aiding respiration, and defends the heart and lungs.

STETHOSCOPE, *steth'-o-scope* [Gr. *stethos*, the chest, and *skopeo*, I explore], an instrument which consists of a tube about ten inches in length, made of wood or gutta-percha, widening considerably at one end, and but slightly at the other. The wide end is applied to the chest or other part of the patient, the physician putting his ear to the other end; and from the sounds emitted by the heart, lungs, etc., the state of these parts may be ascertained. (See AUSCULTATION, PERCUSSION, HEART.)

STEWING, *stu'-ing*, which is the slow cooking of food by heat which does not reach the boiling point, renders meat peculiarly digestible; and, as the juice of the meat, or gravy, is usually eaten with the meat, the whole nutriment is preserved. Stewing may, of course, be rendered injurious to some invalids by the addition of much fatty matter, or by that of vegetables.

STICKWORT. (See AGRIMONY.)

STIFF JOINT. (See ANCHYLOSIS.)

ST. IGNATIUS BEAN. (See STRYCHNOS IGNATH.)

STILLBORN. (See ABORTION, CHILDEED, CHILDREN.)

STILLINGIA SYLVATICA, *stil'-lin'-je-a sil'-vat'-e-ka*, or queen's root, a perennial plant belonging to the Nat. order *Euphorbiaceæ*. It is commonly known as queen's delight, cock-up-hat, yaw root, silver leaf, and is found growing in pine barrens and sandy soils from Virginia to Florida; also in Mississippi and Louisiana. The root is the part used

in medicine. In large doses it is emetic and cathartic; in small doses, alterative, with marked influence over the secretions. It is used in the treatment of secondary syphilis, scrofula, cutaneous diseases, chronic affections of the liver, and other complaints ordinarily benefited by alteratives. Dose: of the fluid extract of stillingia, 5 to 15 drops; of the tincture, $\frac{1}{2}$ to 1 teaspoonful; of stillingin (active principle), 2 to 5 grains; of the decoction of stillingia, 1 to 2 fluid ounces. (See DECOCTION.)

STIMULANTS, *stim'-u-lants* [Lat. *stimulo*, I stir up], medicinally speaking, are all those remedies which possess the power of exciting the nervous energies, and through them the other bodily functions. Stimulants are useful in all cases of debility unaccompanied by inflammation, and especially in the last stages of many grave diseases, when life appears to be about to terminate. They require, however, to be used with caution, and their effects watched. The more common are wine, brandy, whiskey, spirits, ether, ammonia, spices, volatile oils, and resins of various kinds. (See STIMULANTS, ALCOHOLIC; EXCITANTS.)

STIMULANTS, ALCOHOLIC. Alcoholic stimulants are classed as *fermented* and *distilled*. The principal fermented liquors in use in this country are grape wines—domestic or home-made and imported wines—liquor from the fermented juice of the apple, cider; and malt liquors, ale, lager beer, porter, etc., from various grains, principally barley. The distilled liquors most commonly in use are brandy, whisky, gin, and rum, or preparations from these. As the special characters of the various alcoholic liquors in use are entered into under their separate articles, the following observations are directed to the action of alcoholic stimulants, *generally*, upon man, and to their employment by him—their “use and abuse.” Pure alcohol itself (see ALCOHOL) is ranked among the narcotico-acrid poisons; a large quantity, quickly taken, sometimes producing immediate death. (See POISONS AND THEIR ANTIDOTES, INTOXICATION.)

The effect of alcoholic fluids upon the digestive organs and their functions, has been the subject of much discussion and observation. The actual effects probably vary according to the amount and strength of the fluid taken, and upon the habits of the individual, but immoderate doses of strong wine or spirit undoubtedly interfere with digestion. Ardent spirits, drank regularly to excess, exemplify the baneful influence most strikingly; the most usual consequences being, a low degree of inflammation of the stomach, followed by thickening of its coats, and great impairment of its digestive power; and along with these, frequently, hemorrhage from the bowels. The close connection of the liver with the stomach, renders it liable to be affected equally with the latter organ, and, in fact, the liver affection of drunkards is a matter of popular information.

If the abuse of alcoholic liquors is injurious to the body, equally so is it to the manifestations and tendencies of the mind. Passing over the milder forms of excitement, we find, under the influence of excess, that faculty which keeps the will subordinate to the judgment weakened, or for the time destroyed; there is produced, in fact, a state of temporary insanity. (See INSANITY, DIPSOMANIA.)

It is under the temporary insane excitement, produced by abuse of alcoholic liquor, whether purposely or accidentally, that a large proportion of the petty and many of the most fearful, crimes are perpetrated by man.

In considering the effect of alcoholic stimulants upon the system, due attention must always be given to the form in which they are taken. It is certain, that ardent spirits—which it may be remarked should never be taken but as medicine—will exert a much more irritating effect upon the nervous system, both locally in the stomach and at large, than the fermented liquors.

If the question be asked, whether alcoholic liquors form a necessary part of the sustenance of *healthy* men generally, it must be answered certainly not; that they are not necessary is proved by the history of many nations, both ancient and modern.

The propriety and benefit of alcoholic stimulation in the treatment of certain phases of disease, is admitted, and having been noticed under the heads of various diseases, in this work, it is unnecessary to discuss the matter here, or to point out under what external conditions and circumstances, and under what peculiar conditions of mind and body, the use of alcoholic stimulants is either serviceable or necessary. (See STIMULANTS, EXCITANTS, ALE, PORTER, WINE, BRANDY, GIN, RUM, WHISKEY, ALCOHOL, INTOXICATION, DIPSOMANIA, DELIRIUM TREMENS; HEART, DISEASES OF THE; INSANITY, CARBON, COLD, ANIMAL HEAT.)

STIMULANTS, MENTAL. (See EXCITANTS, PASSIONS, MENTAL EXERCISE, RECREATION, PLEASURE, TRAVELLING, OCCUPATION, ETC.)

STIMULANTS, PHYSICAL. (See EXCITANTS, HEAT, LIGHT, ELECTRICITY, AIR, FOOD, EXERCISE, GYMNASTICS, TRAINING, ETC.)

STINGS. (See BITES AND STINGS.)

STITCHES, STITCH IN THE SIDE, *stitch'-ez*. These transient pains, which all persons are apt to experience at times, are probably of a neuralgic or rheumatic character. (See SIDE, PAIN IN THE; NEURALGIA, RHEUMATISM.)

STOMACH, *stum-ak* [Gr. *stomachos*, also *gaster*]. The stomach is the large membranous receptacle which receives the food from the œsophagus, and within which it is acted upon by the gastric juice and converted into chyme. It is situated in the left hypochondriac and

epigastric regions, and when distended it has the shape of an irregular cone, having a rounded base, and being curved upon itself. The left extremity is the larger, and is called the greater or splenic end of the stomach; the right or small end being called the pyloric. The œsophagus terminates in the stomach two or three inches from the great extremity by the cardiac orifice; while by the pyloric orifice at the other end, the digested matter enters the duodenum. When moderately filled, the stomach is about ten or twelve inches in length, and its diameter at the widest part about four inches. The walls of the stomach consist of four distinct coats, held together by fine areolar tissue, and named, in order from without inwards, the serous, muscular, areolar, and mucous coats. At the pyloric orifice, leading from the stomach into the duodenum, there is a sphincter muscle which contracts the aperture and prevents the passage of any matter into the intestines until properly digested. The food is propelled along the œsophagus, and enters the stomach in successive waves through its cardiac orifice. It is then subjected to a peculiar peristaltic motion, having for its object to produce a thorough intermixture of the gastric fluid with the alimentary mass, and to separate that portion which has been sufficiently reduced from the remainder. This motion causes not only a constant agitation or churning of the contents, but also moves them slowly along from one extremity to the other. These revolutions are completed in from one to three minutes, being slower at first than after chymification has more advanced. The passage of the chyme or product of the gastric digestion through the pyloric orifice into the commencement of the intestinal tube is at first slow; but when the digestive process is nearly completed, it is transmitted in much larger quantities. (See DIGESTION, GASTRIC JUICE.) The chief disorders to which the stomach is liable have already been entered into under the heads DYSPEPSIA, GASTRITIS, SPASM, ETC. Blows over the region of the stomach are often serious, and may be immediately fatal. (See BLOWS, SHOCK, ALIMENTARY CANAL, ABDOMEN, DIGESTION, DYSPEPSIA, PHYSIOLOGY, ANATOMY, ETC.)

STOMACHIC, *sto-mak'-ik*. That which excites and strengthens the action of the stomach. (See BITTERS, TONICS, ETC.)

STOMACH PUMP. (See PUMP, STOMACH.)

STOMATITIS, OR INFLAMMATION OF THE MOUTH, *stum-a-ti'-tis*. This disease occurs in three principal forms. 1. *Simple erythema*, occasioned by hot or acrid substances taken into the mouth, by irritation of the teeth, or by derangement of the stomach. Small doses of magnesia, or rhubarb and soda, will generally effect a cure. 2. *Thrush*, a disease which frequently attacks new-born infants. (For a description of it, and for treatment, see THRUSH.) And 3. *Follicular*

stomatitis, or inflammation of the follicles of the mucous membrane. This disease is marked by the appearance of small, round, grayish or white vesicles, with a ring round the base of each. These soon rupture, and an ulcer forms, which spreads rapidly. In some forms, parasitic plants are discovered by the microscope. The solution of pernitrate of iron in 10-drop doses, mixed with syrup of orange-peel, or simple syrup, given three or four times a day, will be found the best remedy. When parasitic plants occur, which of course can only be shown by the microscope, in the hands of a medical man, sulphite of soda, 1 dram to 1 ounce of water, applied locally, will destroy the fungus in twenty-four hours, and effect a cure.

STONE-FRUIT, *stone'-froot*, generally speaking, is less digestible when eaten raw than the other descriptions of fruit; to healthy persons, however, when ripe, and consumed in moderation, it is not injurious.

STONE IN THE BLADDER. (See CALCULUS, URINE, LITHOTOMY, LITHOTRITY.)

STONE-ROOT. (See COLLINSONIA CANADENSIS.)

STOOLS, *stoolz* [Ang.-Sax. *stol*]. The evacuations from the bowels afford important indications of the state of health.

In infancy, the discharges from the bowels are generally lighter colored than they are as life advances, this, perhaps, being partly, but not altogether, due to the usual milk nourishment. In infancy, moreover, the appearance of the natural evacuations is liable to vary greatly in color, and, especially when there is disorder, acidity, etc., to assume a green tinge, either as directly passed from the bowels, or soon after exposure to the air. The nature of these green evacuations is not satisfactorily explained; they generally, however, follow attacks of pain, with much acid. As children get beyond infant life, the stools, particularly in those with light hair and complexion, are apt to become of a clay-color. The true cause of clay-colored stools, in most instances, is the inability of the blood to furnish an adequate supply of the healthy bile. A course of iron tonics, with a good supply of animal food, is likely to bring the color of health, permanently and beneficially.

In adult life, the stools become clay-colored, or chalky, from a different cause, or causes, the most usual being obstruction of the flow of bile (see JAUNDICE), but also from deficient secretion consequent upon disease of the liver, such as occurs in drunkards. The stools may vary in consistence, being either too hard or too liquid; the former is the case in persons of costive habit, in whom the fecal contents pass so slowly through the bowels, that their liquid components are too much absorbed. (See COSTIVENESS.) In the latter case, the too liquid condition of the motions is associated, generally, with tendency to diarrhoea. (See

DIARRHŒA.) The general bulk of the stools must of course depend much upon the amount and quality of the food; inattention to this fact sometimes misleads. It is not uncommon for persons to imagine that, so as the bowels are regularly moved once a day, they must be in a perfectly free state, forgetting that though they may discharge a portion of their contents, they do not necessarily discharge all; in old people, especially, enormous accumulations of fæcal matter are apt to take place, whilst the person is under the impression that because there is a daily stool, the bowels are fully relieved. On the other hand, again, the popular impression seems to be that the bowels fulfil no other office than that of a passage for the food refuse. (See ALIMENTARY CANAL, DIGESTION.) Various articles of food, such as the seeds and skins of fruits, will affect the appearance of the stools, and medicines do so more especially; iron, in particular, forms an inky black with the coloring matter of the bile. Rhubarb, senna, etc., in some degree, impart their color to the stools. Mercurials modify them, causing an olive or deep-green appearance, which may be kept up for a length of time, if mercurials are too continuously given. Persons are thus deceived at times, and under the idea that the motions do not become healthy, go on purging with the mercurials, which are themselves the cause of the unhealthy appearance. Other purgatives may have the same effect in a lesser degree. In unhealthy states of the system, and especially in some febrile affections, the stools become much more offensive than usual. When such is the case, the bowels generally require purging. The stools may contain blood. If this comes from the stomach, or high up in the intestinal canal, it is usually black and pitchy in appearance, and often highly offensive; stools of this kind often occur after severe bleeding at the nose when the blood has been swallowed. The blood may be fresh and clotted, either dark or florid. (See PILES.) In some cases, the stools contain large quantities of mucus, simple or gelatinous-looking, or they contain matter. In all such cases, the motions should be kept for inspection, and a medical man sent for as soon as may be.

Straining at stool may arise simply from costiveness, and therefore is probably habitual; it is, moreover, one of the chief evils of costiveness, for not only is it apt to induce rupture in the predisposed, but, in the aged, it may bring on head attacks. Straining, or, as it is called medically, tenesmus, occurs as a consequence of an inflamed and swollen condition of the lining membrane of the rectum (see RECTUM), such as occurs in diarrhœa, etc.; there is the sensation as if the bowel was still unrelieved, and constant instinctive efforts are made to free it; they only increase the evil, and should, by an effort of the will, be desisted

from, if possible. In children, straining and sitting too long when the bowels are evacuated, may cause falling down of the bowel. The custom should be corrected. (See CATHARTICS, BILIOUSNESS.)

STOOPING. (See CHEST; SPINE, DISEASES, ETC., OF THE.)

STOPPAGE OF URINE. (See BLADDER, DISEASES OF THE.)

STORKSBILL. (See *ERODIUM CICUTARIUM*.)

STORMS. (See BAROMETER.)

STOVES, *stovze* [Ang.-Sax. *stofa*, a stove, a bath], for heating apartments, are not so wholesome as the open fire-place, if but for the one reason, the very defective ventilation they afford; moreover, a stove is apt to cause a dryness of the air of an apartment, which is really injurious; and further, in many forms of stoves, vapors of sulphur, or of carburetted hydrogen, are apt to escape. In any room heated by a stove, extra provision should be made, both for ventilation (see BED-ROOM) and for furnishing moisture to the atmosphere. (See CHIMNEY, VENTILATION, HOUSES, SICK-ROOM.)

STRAINING AT STOOL. (See STOOLS.)

STRAMONIUM. (See *DATURA STRAMONIUM*.)

STRANGURY, *strang'-gu-re* [Lat. *stranguria*], a difficulty and pain in passing the urine, which is excreted by drops. (See BLADDER, DISEASES OF THE; URINE.)

STRAWBERRY, *straw'-ber-re* [Ang.-Sax. *straw-berie*, *strewberie*]. This delicious fruit must be classed with the most wholesome productions of the vegetable kingdom. The leaves are astringent, and have been used with good effect in diarrhœa and dysentery. The roots are diuretic, and steeped in hot water are beneficial in urinary diseases. Dose, of the infusion, 1 to 2 fluid ounces, every two or three hours. (See INFUSION.)

STRICTURE, *strikt'-yur* [Lat. *strictura*], a contracted state of some part of a tube or duct. It also denotes in strangulated hernia the narrowest part of the aperture through which the viscera protrudes. The parts in which stricture most commonly occurs are 1st, the œsophagus, which is rare, and quite beyond the reach of domestic treatment; 2nd, the rectum, this being a mechanical closing of the bowel, caused either by chronic inflammation or malignant disease; in this the feces are passed with much difficulty, being sometimes no larger than the stem of a tobacco pipe in diameter; here, domestic treatment is of little or no avail; 3rd, the urethra, the passage of which must be gradually enlarged by the introduction of a succession of instruments called bougies and catheters. (See BOUGIE, CATHETER.) This kind of stricture is, generally, the result of excesses in early life; it sometimes amounts to complete stoppage of the urine, and causes very great suffer-

ing; when immediate relief cannot be obtained by the use of the above-named instruments, a partial measure of it may, by warm moist application to the parts, or a resort to the hip-bath. (See URETHRA, RECTUM.)

STRUMOUS, *stroo'-mus*, of the nature of scrofula. (See SCROFULA.)

STRYCHNINE, OR STRYCHNIA, *strk'-nine*, *strik'-ne-a*. One of the alkaloids found in the *Strychnos nux vomica*, and the *Strychnos Ignatii*, or Ignatius bean, in company with *brucine* and *igasurine*. Strychnine is one of the most powerful of the vegetable bases. In minute portions, from the thirtieth to the twelfth of a grain, it is used as a tonic in medicine, with a special action on the nerves of motion. Hence it is of value in paralytic affections, torpidity of the digestive organs, etc. In doses of two or three grains it is a most powerful and fatal poison. The *solution of strychnine* is given in doses of 5 to 10 drops, every six or eight hours. On account of strychnine being a powerful poison, it should be taken in the following form:

Take of Solution of strychnine.....Two drams.

Rain water or distilled water.....Four ounces.—*Mix.*

Take 1 teaspoonful every six hours in a tablespoonful of water.

Strychnine is now much used for destroying vermin, and occasionally proves fatal to the human subject by design or accident. (See POISONS AND THEIR ANTIDOTES.) Strychnine should not be employed except under the careful direction of a physician. The above prescription is the only form in which it can under any circumstances be safely used domestically. (See STRYCHNOS IGNATII, STRYCHNOS NUX VOMICA, ALKALOIDS.)

STRYCHNOS IGNATII, *strik'-nus ig-na'-she-i*, or Saint Ignatius' bean, a tree belonging to the Nat. order *Loganiaceæ*. It is a native of Cochin-China, the Philippine Islands, and other parts of Asia. The seeds are the part used in medicine, and contain about one and two-tenths per cent. of strychnine. It is applicable in the wide range of symptoms known as *dyspeptic*. It has a tonic, stimulating effect on all the organs connected with the digestive functions, by its acting directly on their nervous energies, exciting and equalizing their weakened and disturbed action. The large amount of strychnine in the ignatia calls for great care in administering it. Dose: of the fluid extract, 3 to 8 drops; of the solid extract, $\frac{1}{2}$ to 1 grain. (See STRYCHNOS NUX VOMICA, STRYCHNINE, POISONS AND THEIR ANTIDOTES.)

STRYCHNOS NUX VOMICA, *strik'-nus nuks vom'-è-ka*, or nux vomica, a tree belonging to the Nat. order *Loganiaceæ*. It is also called poison nut tree. It is a moderate sized tree, a native of many parts of the East Indies, abounding particularly on the Malabar and Coromandel

coasts. It owes its active medicinal properties to the presence of strychnine and brucia. The seeds are the part used in medicine.

Nux vomica is a violent excitant of the cerebro-spinal system, and in large doses is an active poison. In small doses, frequently repeated, it is tonic, diuretic, and even laxative. It is employed principally in the treatment of paralysis. It is useful in local palsies of the bladder, in amaurosis, spermatorrhœa and impotence. As nux vomica contains a large amount of strychnine, it should be administered with great caution. Dose: of the fluid extract, 5 to 10 drops; of the solid extract, $\frac{1}{4}$ to 1 grain. (See STRYCHNOS IGNATHI, STRYCHNINE, POISONS AND THEIR ANTIDOTES.)

STUPOR, OR COMA. (See COMA.)

STUTTERING, OR STAMMERING. (See SPEECH.)

ST. VITUS'S DANCE. (See SAINT VITUS'S DANCE.)

STY, OR STYE, *sti* [Ang.-Sax. *stigend*]. This well-known inflammatory tumor in the eyelid is often very troublesome; delicate and unhealthy children are much subject to the affection, but sometimes adults, and even those in robust health, are liable to it.

Symptoms.—At first there is a little irritation and itching in the upper or lower lid of the eye, but more frequently in the former; then there is redness and swelling, and a small boil is developed among the roots of the eyelashes; after two or three days this bursts, and matter escapes; a scale forms, which soon drops off, and probably in a few days there is no symptom remaining to mark the spot.

Treatment.—Commence by fomenting the eyelids, night and morning, with warm water, or decoction of poppies, and keep on during the night a warm bread poultice; continue with this until the matter is formed and discharged; then, when the scab is formed, smear the margin of the lids night and morning, with a little dilute citrine ointment, taking care that it does not go into the eye; this may be continued for a week or so, and at the same time the system should be strengthened by purgatives followed by tonics. Persons who are subject to styes, should bathe their eyelids with a weak solution of salt in water, every night and morning.

STYPTICS, *stip'-tiks* [Gr. *stupto*, I constringe], are applications, usually of an astringent character, which possess the power of arresting hemorrhage. It is to external arresters to bleeding that the term styptic is applied in this article.

Oak-bark decoction, and gall-nuts in powder or infusion, which owe their efficacy to the tannin they contain, are used as external styptics. (See QUERCUS.) In addition to these, matico and turpentine (which see) are styptics derived from the vegetable kingdom; also the agaric fungus

popularly known as the “fuz-ball,” which is frequently applied to bleeding wounds, and with apparent benefit. From the mineral kingdom many styptic applications may be derived, such as the salts of iron (see IRON), especially the sulphate and muriate, the sulphates of copper and zinc, the acetate of lead, and the nitrate of silver. Cold, the actual cautery, or red-hot iron, etc., are all styptic applications. (See IRON, COPPER, ZINC, LEAD, SILVER, COLD, HEMORRHAGE.)

STYRAX, *sti'-raks*, the typical genus of the Nat. order *Styracaceæ*. *S. Benzoin*, the benjamin tree, yields the well-known balsamic exudation called *gum-benjamin*. The product now called *liquid storax* comes from a species of the genus *Liquidambar*. (See BENZOIN, LIQUIDAMBAR.)

SUCCINUM, OR AMBER SUCCINUM, *suk'-se-num* [Lat.], the resin from a coniferous tree found growing in Northern Europe and Eastern Asia. It yields on distillation, oil of amber, which, in doses of 5 to 10 drops, was formerly regarded as a good remedy in whooping-cough, epilepsy, and hysteria. It is now rarely prescribed.

SUDORIFICS, *su-do-rif'-iks* [Lat. *sudor*, sweat, and *facio*, to make], those medicines which promote perspiration. (See DIAPHORETICS.)

SUET. (See SEVUM PREPARATUM.)

SUFFOCATION, *suf'-fo-ka'-shun* [Lat. *suffocatio*], is the act of choking or producing death by the interruption of the breath. The three ordinary ways in which suffocation may be effected are hanging, drowning, and the respiration of fixed air, or carbonic acid gas. In every case of suffocation, our attempts at reanimation should be directed to renew respiration by inflation of the lungs; to restore the animal heat by exposure to warm pure air, and by assiduous friction of the surface; to rouse by stimulants, and by brushing the soles of the feet and palms of the hands; and when necessary, to relieve cerebral congestion by moderate and cautious bleeding. (See ASPHYXIA, DROWNING, HANGING, CARBONIC ACID, CHOKE-DAMP, FOREIGN BODIES IN AIR-PASSAGES, FOREIGN BODIES IN THE GULLET, ACCIDENTS; ANIMATION, SUSPENDED; ETC.)

SUGAR, *shug'-ar* [Lat. *saccharum*], is for the most part a product of the vegetable kingdom, but not entirely so, for it occurs in milk, and in eggs in small quantity, and is also produced by the animal body. Sugar is formed principally of two distinct varieties,—cane, or ordinary sugar, and sugar of fruits, or grape sugar. Both are composed of the elements, carbon, oxygen, and hydrogen, but differ somewhat in the proportions in which these are combined. For sugar of milk, see SACCHARUM LACTIS. As an article of nutriment, sugar is of course the representative of the saccharine principles, which include starch, gum, etc.; the position which these principles hold, and the part they fulfil in the processes of nutrition generally, having been sufficiently entered into under article

FOOD, it is unnecessary to repeat them here. With regard to the digestibility of sugar by different individuals, there is considerable variation. Some persons cannot consume it, even in small quantity, without being disordered and suffering from acidity, whilst others seem actually to digest their food better when sugar is mingled with it, and, undoubtedly, a moderate proportion is wholesome for people generally, except under those peculiar states of constitution, or rather disease, when the tendency of the assimilative powers generally is to form sugar. This animal sugar has not only been detected in the blood, but in the stomach, after a person had been fed for days upon animal food alone.

For impurities in sugar, see ADULTERATION OF FOOD. (See also DIABETES, FERMENTATION, FOOD, SYRUP.)

SUGAR OF LEAD. (See LEAD.)

SUGAR OF MILK. (See SACCHARUM LACTIS.)

SUICIDE, SUICIDAL TENDENCY, *su'-e-side* [Lat. *sui*, of one's self, and *cedo*, to kill]. In opposition to the hitherto prevalent opinion, that the cause of self-destruction is, in the majority of cases, a mental act, unconnected with a disturbed condition of the bodily functions, and incurable by any process of medical treatment, Dr. Forbes Winslow asserts his belief that the suicidal idea is almost generally connected with a morbid condition of the body, and is often the only existing evidence of such an affection; that it is, with a few exceptions, universally associated with physical disorder, disturbing the healthy balance of the understanding; and that this bodily affection, which is, in nine cases out of ten, the cause of mental irregularity, is easily curable by the judicious application of remedial means.

The argument to be adduced from this belief is, that persons who manifest suicidal tendencies should be looked upon not as hopelessly insane, but as diseased persons, whose malady is quite within the reach of proper remedies.

But to base too much upon the bodily condition may hold out inducements to those who are afflicted with the suicidal tendency to abandon that moral and religious control of their actions which is so powerful, and which in many cases will overcome in the end. If an elevated religious and moral tone had nothing to do with controlling the propensity to crimes, and to that of suicide among the number, statistics would not furnish the evidence of the preponderance of these crimes among people who notoriously cast aside the practical regulation of religion in their lives, individually or socially.

The subject of human responsibility, where, overcome by the evil tendencies originating in physical derangement, it ceases to be responsibility, is perhaps one which man can never fathom, but it is one which

ought to be upheld to the utmost in such conditions as a tendency to suicide; whilst giving every attention to the medical treatment of the physical condition, there should at the same time be given every encouragement to those who show the least tendency to this derangement, to keep, if they can, and as long as they can, the reins of reason. The mind can, and often will, overcome mental depression from physical causes, but it must be exerted. The reader is referred to some observations under article HABIT. The tendency to suicide is found to be less in persons who are occupied out of doors. (See MELANCHOLY, HYPOCHONDRIASIS, INSANITY, HEREDITARY TENDENCY.)

SULPHATES, *sul'fatz*, are salts, in which the base, such as an alkali, or a metallic oxide, is united with sulphuric acid.

SULPHUR BATH. (See BATHS AND BATHING.)

SULPHUR, BRIMSTONE, *sul'fur* [Lat.], belongs to the elementary bodies. It is found in large quantities in some volcanic countries, such as Sicily. In medical practice sulphur is variously employed, its best known application, however, being for the cure of itch, in the form of ointment. (See ITCH.) In various skin diseases sulphur is prescribed by medical men; it is also used as a mild laxative in pregnancy and in cases of piles. For the latter purposes it is advantageously mingled with three or four times its weight of cream of tartar, or with its own weight of magnesia. The sublimed, or *flowers of sulphur*, is the form in most common use; but the precipitated, or *milk of sulphur*, is rather a more elegant preparation. One very serious objection to the use of sulphur is the abominable odor which it imparts to the person, particularly to the insensible perspiration.

The dose of sulphur as a laxative, is, alone, 2 drams; when mixed with cream of tartar or magnesia, from $\frac{1}{2}$ to 1 dram. It is best given in a little milk. (See SULPHUR, IODIDE OF.)

SULPHURIC ACID, OR OIL OF VITRIOL, *sul-fu'-rik*, SO_3 , is formed by the oxidation of sulphurous acid, or some other oxide of sulphur. It melts at 65° Fahr., and boils at 110° Fahr., forming a colorless vapor. When pure, it is a heavy, oily, colorless, inodorous liquid, having a specific gravity of 1.842. Sulphuric acid is a powerful caustic, burning and destroying the parts with which it comes in contact. Thus in a large dose or undiluted it is a violent corrosive poison. In small doses properly diluted it is tonic, refrigerant, astringent, exciting the appetite, and promoting digestion.

In relaxed states of the system, it is one of our best tonics. When taken medicinally, it ought, like the other mineral acids, to be sucked through a quill, or small glass tube, to prevent injury to the teeth, on which it acts powerfully. Unless absolutely required in a concentrated

form for some special object, sulphuric acid should never be kept in a private house otherwise than diluted.

Dilute sulphuric acid is formed by mixing 7 ounces of the acid with 77 ounces of distilled water, and when cooled to 60°, adding more water, so as to make 83½ fluid ounces. Dose: 5 to 30 drops. The *aromatic sulphuric acid* or *elixir of vitriol* is formed by mixing gradually 3 fluid ounces of sulphuric acid with 2 pints of rectified spirit, then adding 2 ounces of cinnamon bark and 1¼ ounce of ginger, both in coarse powder, macerating for seven days, and then filtering. Dose, 5 to 30 drops

In consequence of its employment for various household purposes, *poisoning by sulphuric acid* is not very uncommon, and if the acid be strong, is one of the most distressing accidents of this nature which can happen. For symptoms and antidotes see POISONS AND THEIR ANTIDOTES.

SULPHUR, IODIDE OF, *sul'-fur*. Its principal use is as an external application. Pereira observes: "It is a very stimulant remedy, adapted to cases of chronic skin diseases, which have survived the stage of inflammation during the whole course, such as salt-rheum, leprosy, etc." It may also be given internally in the dose of from 1 to 6 grains. When taken internally its action resembles, if it be not identical with, that of iodine. (See SULPHUR.)

SULPHUROUS ACID, *sul'-fur-us*, in Chemistry, SO₂, an acid formed by the union of an equivalent of sulphur with two of oxygen. At ordinary temperatures, sulphurous acid is a gas; but it may be readily condensed into a liquid by a pressure of three atmospheres, or by a freezing mixture of ice and salt. Sulphurous acid is a powerful deodorizing and disinfecting agent, being destructive to minute vegetable and animal organisms. It is employed externally in the form of baths for diseases of the skin, and is also used internally for the same purpose. It is also valuable in diseases of the stomach, particularly when owing to fungous growth, as *sarcina ventriculi*. Dose, ½ to 1 teaspoonful in water.

SULPHUR SPRINGS. (See MINERAL WATERS.)

SUMACH, OR SUMAC. (See RHUS GLABRUM.)

SUMMER. (See SEASONS, HEAT, SUNSTROKE.)

SUMMER-COMPLAINT, OR CHOLERA INFANTUM, *sum'-mur-com-plānt*, a very common, and frequently fatal disease, occurring during the hot season, among young children.

Cause.—Improper food, impure air, want of cleanliness, unhealthy dwellings, and lack of care are the most common causes, but even with the best care, during dentition, children raised by hand are frequently the victims of this troublesome affection.

Symptoms.—Purging, vomiting, great thirst, prostration, loss of

appetite, and more or less colicky pain. These symptoms are sometimes followed by stupor and death, in thirty-six hours, but generally they are prolonged for weeks, the little sufferer constantly wasting away.

Treatment.—The patient must be kept as quiet as possible, and lying down the most of the time. The first indication is to relieve the vomiting and purging: for this purpose a light poultice, made of equal parts of mustard and linseed-meal, should be placed over the stomach and allowed to remain until the skin is red, and at the same time a teaspoonful of lime-water and milk, equal parts of each, may be given every twenty or thirty minutes. This mixture may be improved by adding to each ounce a drop or two of creasote, or 8 to 10 drops of chloric ether. If the stomach will not tolerate the milk, the lime-water may be given alone, or instead, a few grains of baking soda in a teaspoonful of water. Food, other than the milk and lime-water, should not be given until the vomiting has ceased. To relieve the thirst, white of eggs, made thin with a little Seltzer water, may be given. When there is very great prostration, the celebrated French physician, Prof. Trousseau, recommended a diet of raw meat. The lean of beef or mutton cut into small pieces and thoroughly pounded in a mortar, and then passed through a fine sieve, and a few grains of salt added, may be given in $\frac{1}{2}$ teaspoonful doses, every two or three hours. In this way 2 tablespoonfuls may be taken in the course of twenty-four hours. If the stomach bears it the doses may be increased in a day or two. As soon as convalescence has so far progressed that the child may be safely removed, it should be taken to the seashore, or if this be not practicable, to some cool, salubrious point in the country. This treatment, if not too long deferred, generally succeeds in restoring the little patient to health. (See CHILDREN, DIARRHŒA.)

SUMMER-SAVORY, *sum'-mur-sa'-vo-re*, a small plant growing wild in Europe, and extensively cultivated in this country. The leaves are the part employed in medicine. They are stimulant, carminative and emmenagogue, and in the shape of warm infusion are beneficial in colds, suppressed menstruation, and flatulent colic, and the cold infusion is a gentle stimulating tonic during convalescence from fevers. Dose: of the infusion, either cold or hot, 1 to 4 fluid ounces, frequently repeated. (See INFUSION.)

SUNBURN. (See ALMOND EMULSION, VASELINE.)

SUNFLOWER. (See HELIANTHUS ANNUUS.)

SUNSTROKE, OR COUP DE SOLEIL, *sun'-stroke*, is a disease affecting those who are exposed to the direct beams of a hot sun, particularly during any labor or active exercise. It is not uncommon among troops in long marches. They fall down insensible, and often die in a

very short time. The nature of this complaint is not well understood. According to some, it is a sort of apoplexy, while others hold that it is more of the nature of concussion. It would appear that the sun's rays act upon the brain like a shock, suddenly and extensively influencing the nervous system, and arresting the movements of the heart.

Cause.—It is a mistake to suppose that *only* those who are exposed to the direct rays of the sun are in danger of sunstroke. Many of the cases occur in the shade and in heated rooms. Habits of intemperance, impure air, and over-exertion, predispose to attack.

Symptoms.—Dizziness, headache, listlessness, followed by stupor; the breathing is irregular, the pulse weak and fluttering, and sometimes there is jerking and twitching of the limbs.

Treatment.—Place the patient in the recumbent position, in a cool, shady place; remove the clothing, and dash cold water over the head and chest, calves of the legs, and feet. Some physicians recommend to rub the body with pieces of ice. If the patient can swallow, give plenty of good strong tea, which is even better than spirits.

Preventive treatment.—Those who are compelled to expose themselves to the direct heat of the sun in summer, either travelling or working, should be clad loosely, advance slowly, rest often, drink no spirits, and protect the neck with a linen cape, or even a handkerchief attached to the hat. A wet sponge or towel placed in the hat keeps the head cool. Small pieces of ice allowed to dissolve in the mouth are better than drinking much cold water. (See HEAT.)

SUPPER, OR TEA, *sup'-pur* [Ang.-Sax. *supan*, to sup]. The last meal of the day is properly supper, or tea. Much has been said respecting the unwholesomeness of eating suppers—much depends upon circumstances. Generally speaking, animal food once a day is sufficient; if, therefore, an individual for whom it is enough, after a sufficiently good meat dinner, adds a superfluous meat supper shortly before retiring to rest, there can be little wonder if he pays the penalty in sleep disturbed by dreams and nightmare, and by a furred tongue and unrefreshed waking in the morning. This is especially the case if the superfluity is indulged in after a dinner made in the latter part of the day. If dinner is early, if much exercise is taken between that and the evening meal, and if supper is not eaten at too late an hour, many persons can take with benefit a moderate proportion of animal food. Those to whom suppers are most injurious are the plethoric, or such as suffer from head symptoms. Some persons, however, especially dyspeptic invalids, do themselves harm by abstaining from suppers of every kind, especially when the principal meal has been

taken early in the day. (See BREAKFAST, LUNCHEON, DINNER, MEALS, DIET, FOOD, REGIMEN, ETC.)

SUPPOSITORY, *sup-poz'-e-tur-e* [Lat. *suppositorius*, that is placed underneath], is a medicine in a solid form passed up into the rectum. In some cases, this mode of administering remedies is very convenient, especially when the stomach cannot receive them readily. Generally, it is most suitable in painful diseases—such as those of the bladder, womb, etc.,—situated in the vicinity of the lower bowel. In such cases, the suppository must of course be anodyne, usually opiate, which may be thus made to exercise its effects without disordering the stomach. A grain of powdered opium, with 5 or 6 of *firm* henbane extract, makes a very good suppository. A suppository may be introduced into the bowel on the point of the finger, both being well greased; the operation is, however, better and more conveniently done by the suppository tube made for the purpose.

SUPPRESSION OF THE MENSES. (See CHLOROSIS, MENSTRUATION.)

SUPPURATION, *sup-pu-ra'-shun* [Lat. *suppuratio*]. The formation of pus or matter. (See INFLAMMATION, PUS, SUPPURATIVES, ETC.)

SUPPURATIVES, *sup'-pu-ra-tivz* [Lat. *sub*, beneath, and *pus*, matter.] Applications that promote or facilitate the formation of matter. Suppuratives are applied to abscesses, boils, etc., to hasten their ripening, as it is called. Among those most commonly used are warm linseed poultices and hot fomentations. (See SUPURATION.)

SURGERY, SURGEON, *sur'-je-re, sur'-jun*. Surgery was anciently called *Chirurgery* [Gr. *cheir*, the hand, and *ergon*, work]. It is that branch of the healing art which employs manual procedure, whether by instruments or not, in the reparation of injury or cure of disease, as distinguished from the practice of medicine, which treats disease by the administration of drugs or other substances of a sanative tendency. This distinction, however, exists more in name than in reality, for the two are indissolubly connected, and the successful practice of the one is, of necessity, dependent on a knowledge of the principles of the other. The skilful surgeon requires to be possessed of some of nature's choicest gifts. He requires to be possessed of a strong, steady hand, a clear, quick sight, and great coolness and courage. Dexterity in the use of the instruments is also of the utmost importance.

The different operations of surgery will be found noticed under their proper heads in other parts of this work. (See MEDICINE, AMPUTATION, DISLOCATIONS, FRACTURES, WOUNDS, BURNS AND SCALDS, BITES AND STINGS, ACCIDENTS, SUTURE, BANDAGES, DRESSING, LITHOTOMY, ANÆSTHETICS, CHLOROFORM; INSTRUMENTS, SURGICAL; ETC.)

SURGICAL INSTRUMENTS. (See INSTRUMENTS, SURGICAL.)

SUSPENDED ANIMATION. (See ANIMATION, SUSPENDED; ASPHYXIA, SUFFOCATION, DROWNING, HANGING, DEATH.)

SUTURE, *sute'-yur* [Lat. *suo*, to sew], a mode of uniting the edges of a wound by stitches.

It is sometimes advisable, in the absence of professional aid, for the edges of a bad wound to be drawn together, and this may be effected by a tolerably strong needle, threaded with a piece of strong silk; the stitches should be set some way in from the edges of the cut, and should not be placed very near together. (See WOUNDS, DRESSING, ETC.)

Suture is a term also applied to the junction of the bones of the cranium. (See ANATOMY.)

SWALLOWING. (See DEGLUTITION.)

SWALLOWWORT. (See ASCLEPIAS.)

SWAMP BEGGAR-TICK. (See BIDENS BIPINNATA.)

SWAMP DOGWOOD. (See CORNUS FLORIDA.)

SWAMP FEVER, OR AGUE. (See AGUE.)

SWAMP HELLEBORE. (See VERATRUM VIRIDE.)

SWAMP SASSAFRAS. (See MAGNOLIA.)

SWEAT. (See PERSPIRATION.)

SWEATING MEDICINES. (See DIAPHORETICS, ANTIMONIAL POWDER, DOVER'S POWDER, JAMES' POWDER, PERSPIRATION.)

SWEATING OF FEET AND ARMPITS, FETID. (See CARBOLIC ACID, ALUM, CLAY.)

SWEDISH MOVEMENT CURE. (See MOVEMENT CURE.)

SWEET ALMOND. (See AMYGDALUS.)

SWEET FENNEL. (See FÆNICULUM.)

SWEET FERN. (See COMPTONIA ASPLENIFOLIA.)

SWEET FLAG. (See ACORUS CALAMUS.)

SWEET GALE. (See MYRICA GALE.)

SWEETMEATS AND SWEET-CAKES. (See CONFECTIONERY.)

SWEET-OIL. (See OLIVE-OIL.)

SWEET SPIRIT OF NITRE. (See ETHER, NITROUS OR NITRIC.)

SWEET WILLOW. (See MYRICA GALE.)

SWELLED-LEG, OR MILK-LEG. (See MILK-LEG.)

SWELLING, *swel'-ing*. Increase of size of different portions of the textures of the living body may arise from a variety of causes. The swelling may be either of a fluid or of a solid character. In the former case, it may be caused by increased accumulation or determination of blood in or to the part, the blood being contained within the blood-vessels; more usually, however, fluid swelling is caused by blood or other fluid not contained within the vessels, but effused into the textures

where the swelling occurs. Of this nature is the swelling which occurs after violence; it is, in fact, the result of the effusion of blood—inward bleeding—or of serum into the tissues. The formation of matter also causes swelling. Fluid swellings are in many cases of rapid formation; solid swellings, from their nature, are in general necessarily of slow increase. In rupture, of course, the presence of gas in the protruded bowel renders that a cause of swelling, though comparatively an unfrequent one. As the different forms of swelling are noticed under other articles, it is unnecessary to reiterate them here. (See TUMOR, ETC.)

SWIMMING. (See EXERCISE.)

SWIMMING BATH. (See BATHS AND BATHING.)

SWOON, OR SYNCOPE. (See FAINTING.)

SYMPATHY, *sim'-pa-the* [Gr. *pathos*, affection]. In man, probably in the higher animal tribes, there exists between certain different portions and organs of the same living body, a bond of connection, or at least of relative action, through which excited or diseased action in the one is excited in the other, sympathetically, as it is called, or by sympathy. It is evident, however, that what are called sympathetic actions arise, apparently, at least, in very different ways. Some which are classed as such are evidently the result of contiguity, others of reflex action (see NERVOUS SYSTEM), or at least of nervous communication, others of derivative action.

SYMPHYTUM OFFICINALE, *sim-fi'-tum of-fis-e-na'-le*, or comfrey. A perennial European plant belonging to the Nat. order *Boraginaceæ*. It is much cultivated in our gardens for medicinal purposes. The root is the part used. Comfrey is demulcent, and somewhat astringent. It belongs to that class of agents by which scrofulous and anæmic conditions are beneficially treated. (See SCROFULA, CHLOROSIS.) Useful in diarrhœa, dysentery, coughs, bleeding from the lungs, other lung affections, and in leucorrhœa and female debility. Dose: of the fluid extract, 2 to 4 teaspoonfuls; of the infusion, 1 to 2 fluid ounces; of the syrup, $\frac{1}{2}$ to 1 fluid ounce. (See INFUSION.)

SYMPLOCARPUS FÆTIDUS, *sim-plo-kar'-pus fet'-e-dus*, or skunk-cabbage, a perennial plant belonging to the Nat. order *Araceæ*. It grows in moist grounds in various parts of the United States. The whole plant has an extremely disagreeable odor; thought to resemble that of the animal after which it is named. The root is the part generally used. Skunk-cabbage is stimulant, antispasmodic, and narcotic. In large doses, it will occasion nausea, vomiting, dizziness and dimness of vision. The leaves, when bruised, form a very good stimulating application to blisters. It was introduced at first as a remedy for asthma, and it has since been considered an excellent remedy in chronic

catarrh, chronic coughs, whooping-coughs, pulmonary and bronchial affections, hysteric paroxysms, dropsy, rheumatism, and even epilepsy. Dose: of the fluid extract, 20 to 80 drops; of the infusion, 1 to 2 fluid ounces; of the syrup, 1 to 2 teaspoonfuls, three or four times a day.

SYMPTOMS, *sim'-tuniz* [Fr. *symptome*]. In a state of perfect health, all the functions of the living body are performed in regular series, and according to certain modes of action, which we recognize as those of health. When, however, these series or modes become deranged or altered, there arise certain signs, or, as they are generally called, symptoms, which, as they vary according to the nature of the cause that produced them as effects, afford to the medical man a clue to the detection of the cause, more or less perfect, according to the state of his knowledge, experience, and means of investigation—they in fact furnish the means by which he forms his diagnosis in the first instance, and which guide his opinion as to the treatment and ultimate issue of the case.

By *systematizing inquiries* and observations, a much clearer idea will be gained of the state of an individual who is an object of care and solicitude, than by making them at random. Thus, beginning at the head, attention should be directed to any unusual sensations complained of by the person, or any unusual manifestations apparent to others. These are pain, giddiness, affection of the senses, confusion of thought, or impairment of mental power; flushings, twitchings, drawing of the features to one side; disturbed sleep; moaning; grating of the teeth; sleeplessness, or too great somnolency. Passing downwards to the organs of respiration; alterations in the character of the voice; in the respiration, as to the frequency or otherwise; in the power of lying in any or every posture, are all matters for observation; also any habitual cough, and its character. When the digestive organs are disordered, the times of their chief disorder, as connected with taking food, is an important symptom; whether the uneasiness comes on quickly after a meal, or not for some hours; whether it is worse after long fasting, or the reverse; whether there is habitual vomiting, etc. With respect to the bowels, the nature of the motions or stools is to be inquired into, and especially the fact of thorough daily relief. In inquiry into the state of the urinary organs, the amount of the secretion, its nature as to color, or its tendency to deposit sediment immediately after being passed, or when it becomes cool, are principal objects. If the calls are too frequent, it is to be noticed whether this depends on increased quantity or on diminution, which causes irritation from greater concentration. In this way, by carefully and systematically considering a case, even an unprofessional person may acquire very considerable knowledge of its

leading features, sufficient probably to enable him to refer to those articles in this work from which he will derive proper information; in many cases, sufficient to open the eyes to a condition of health that calls for the prompt submission to proper medical advice; and when this is determined on, the observation of symptoms, either in his own case or in that of another, such as a child, will enable an individual to furnish a medical man, even at a first interview, with such a history as will afford him much assistance in forming his opinion. (See DIAGNOSIS, HEALTH, DISEASE.)

SYNCOPE, *sing'-ko-pe* [Lat. *syncope*, *syncopa*.] A state of swoon or fainting. (See FAINTING.)

SYNOVIA, OR SYNOVIAL FLUID, *si-no'-ve-a* [Lat. *ovum*], is the fluid which is secreted within the joints by the lining or synovial membrane, for the purpose of lubricating the opposed cartilaginous surfaces of the bones, and facilitating their movements upon one another. It contains a considerable amount of albumen, and from its unctuous quality is known popularly as joint-oil.

SYPHILIS, *sif'-e-lis*, commonly called pox, or the venereal disease, is disease contracted in consequence of impure connection. The fearful constitutional consequences which may result from this affection; consequences, the fear of which may haunt the mind for years, which may taint the whole springs of health, and be transmitted to circulate in the young blood of innocent offspring, are indeed terrible considerations, too terrible not to render the disease one of those which must *unhesitatingly*, and without any delay, be placed under medical care. In the meantime, if any delay must occur, the pustule sores which may be observable must be well touched with lunar caustic, nitrate of silver (see CHANCRES), the diet should be reduced and deprived of stimulants, and the bowels acted upon by moderately active aperients; violent exercise being at the same time avoided.

Whatever the circumstances may be, once and for all, the author would warn against any trust being placed in the specious advertisements in connection with the disease in question, which are so perseveringly and disgustingly paraded before the public eye, by quacks, who endeavor to fleece the silly dupes who resort to them, by first exciting their fears. (See BUBO, NODE.)

SYRINGE, *sir'-inj* [Lat. *syrix*]. This well-known instrument is useful domestically for many purposes, and its employment is recommended in various articles in the present work. For full information concerning the use of the syringe, see CLYSTER. (See also EAR SYRINGE.)

SYRUPS, *sir'-ups* [Lat. *syrupis*], are saturated solutions of sugar in water, either simple, or united with other substances. They are chiefly

employed to render unpalatable medicines more acceptable. Simple syrup is made by dissolving 5 pounds of refined sugar in 2 pints of pure water with the aid of heat, and then after cooling, adding as much water as may be necessary to make the weight $7\frac{1}{2}$ pounds. Syrup should be kept in a situation with the temperature under 55° Fahr. The following are a few of the most useful syrups with the formulæ for their preparation :

BLACKBERRY, SYRUP OF.

Take of Fluid extract of blackberry...One-half pint.
Syrup.....One and a half pint.—*Mix.*

Tonic and astringent ; useful in diarrhœa, dysentery, summer-complaint, and in most cases of debility in children affected with loss of appetite. Dose, $\frac{1}{2}$ to 2 teaspoonfuls every two or three hours.

CHAMOMILE, SYRUP OF.

Take of Fluid extract of chamomile.....Four ounces.
Syrup.....Twelve ounces.—*Mix.*

Useful as a tonic. Dose, 2 to 4 teaspoonfuls, three or four times a day.

IPECAC, SYRUP OF.

Take of Fluid extract of ipecac.....Two ounces.
Syrup.....Thirty ounces.—*Mix.*

Useful as an emetic and expectorant. Dose : as an emetic for an adult, from $\frac{1}{2}$ to 1 ounce ; for a child, 30 drops to 1 teaspoonful, repeated every fifteen minutes until it acts. As an expectorant, for an adult, $\frac{1}{2}$ to 1 teaspoonful ; for a child, from 2 to 10 drops.

RHUBARB, SYRUP OF.

Take of Fluid extract of rhubarb.....Thirty ounces.
Syrup.....Twenty-nine ounces.—*Mix.*

A mild cathartic especially adapted for infants. Dose, for adults, 1 to 4 teaspoonfuls ; for children, $\frac{1}{2}$ to 1 teaspoonful, according to age.

WILD CHERRY, SYRUP OF.

Take of Fluid extract of wild cherry....Thirty ounces.
Syrup.....Thirteen ounces.—*Mix.*

Very useful in pectoral affections. Dose, 1 to 2 tablespoonfuls.

For cough syrups, or cough mixtures, see the article COUGH.

SYSTOLE, *sîs'-to-le* [Fr. *systole*], is the contractile action of the heart, by which the blood is expelled from the cavities. It is the reverse of diastole.

T.

TABES, *ta'-beez* [Lat.], a wasting of the body, characterized by emaciation, weakness, and fever, but without cough or expectoration. It is commonly distinguished from atrophy by being attended with fever, which the latter is not. It is generally supposed to arise from some acrimony or poison in the blood. The treatment consists in endeavoring to strengthen the system by tonics, nourishing diet, change of air, sea-bathing, etc.; in short, the same treatment as for scrofula, for *tabes* or *tabes mesenterica*, is simply scrofula of the mesenteric gland. (See SCROFULA, ATROPHY, EMACIATION, ETC.)

TABLE OF DOSES. (See DOSE.)

TABLE OF MORTALITY. (See MORTALITY.)

TAG-ALDER. (See' ALNUS RUBRA.)

TAMARAC. (See LARIX AMERICANA.)

TAMARINDS, *tam'-a-rindz*. Preserved tamarinds in form of infusion are cooling and aperient, and a welcome addition to the sick-room dietary in many febrile diseases.

TANACETUM VULGARE, *tan-a-se'-tum vul-ga'-re*, tansy or double tansy, a perennial herb belonging to the Nat. order *Asteraceæ*. It is a native of Europe, but has become naturalized all over the American continent. It is an aromatic tonic and anthelmintic. In the warm infusion it possesses both emmenagogue and diaphoretic properties. In overdoses bad consequences follow its use. In small doses it will be found useful in convalescence from exhausting diseases, in hysteria, and dyspepsia complicated with flatulency. The vinous preparation is said to be beneficial in strangury, and in debility of the kidneys. It is especially serviceable in worms. The oil of tansy has been used for the purpose of procuring abortion, but it is highly dangerous, Dose: of the powder, 30 to 60 grains; of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 1 to 2 teaspoonfuls; of the oil, 2 to 10 drops; of the infusion, 1 to 3 fluid ounces. (See INFUSION.)

TANNIN, OR TANNIC ACID, *tan'-nin*, is obtained from the nutgall of the oak, which contains two-thirds of its weight of this acid. *Glycerine of tannic acid* ($\frac{1}{2}$ ounce of acid and 4 fluid ounces of glycerine mixed) is a valuable astringent application to piles and relaxed, bleeding, or inflamed parts. As a suppository, tannin acid is useful in piles, bleeding, or relaxation of the lower bowel.

In passive and exhausting hemorrhage, whether proceeding from the lungs, stomach, womb or kidney, tannin, in doses of from 3 to 6 grains, three or four times a day, proves very useful by its powerfully astringent and tonic properties. In the chronic stage of whooping-cough, in $\frac{1}{4}$ -grain doses, every two hours, combined with enough senna to relax the bowels, the paroxysms have entirely ceased; 5 grains to an ounce of water is found useful as an application to sore nipples. One part of tannin, to thirty parts of water, makes a useful local application, in both acute and chronic conjunctivitis.

TANSY. (See TANACETUM VULGARE.)

TAPE-WORM. (See WORMS, ASPIDIUM, POMEGRANATE, PUMPKIN SEEDS, KOUSSO, ROTTLEA TINCTORIA.)

TAPIOCA, *tap-e-o'-ka*, is a starchy substance, or fecula, like sago; it is procured from the root of a shrub, which is cultivated chiefly in the West Indies. Tapioca is used in sick-room cookery for the same purposes as arrowroot and sago.

TAPPING, *tap'-ping*, in medical practice, is the withdrawal of fluid which has collected in unnatural quantity in any of the natural cavities of the body. The operation can only be performed by a medical man.

TAR AND PITCH, *tär, pitsh*. The well-known black viscid substance tar, is obtained from the wood of the different species of pines, by the agency of heat. For medical purposes tar has been used from the most ancient times as a remedy in chest affections, chronic bronchitis, incipient consumption, etc. Tar is usually administered in the form of tar-water, which is best made by digesting—stirring occasionally—1 ounce of tar in 32 ounces of water for seven or eight days, and then straining. The dose is $\frac{1}{2}$ a pint twice a day mixed with milk. Pitch is the hard, black, brittle residue left after tar has been exposed to heat. It is little used. Pills made of pitch are a popular, and certainly at times a successful, remedy, in bleeding piles.

TARAXACUM DENS-LEONIS, *ta-raks'-a-kum dens-le-o'-nis*, or dandelion, a plant belonging to the Nat. order *Asteraceæ*. It is a native of Greece, but is now found growing abundantly in fields, gardens, and along the roadsides throughout Europe and America. The root is the part used in medicine, and should be collected early in the autumn, while the plant is in flower. Dandelion is a valuable alterative, tonic, diuretic and aperient. It has a specific action on the liver, exciting it to secretion when languid. It is used with good effect in dyspepsia, diseases of the liver and spleen, and in irritable conditions of the stomach and bowels. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the solid extract, 10 to 20 grains; of the decoction, 1 to 2 fluid ounces, three or four times a day. (See DECOCTION.)

TARTAR-EMETIC. (See ANTIMONY.)

TARTAR-EMETIC OINTMENT, *tär'-tar*. This ointment is made as follows:

Take of Tartarized antimony in fine powder....One-fourth ounce.

Simple ointment, or fresh lard.....One ounce.—*Mix*.

It is used for purposes of counter-irritation; two or three applications bringing out a crop of pustules. It should be used by unprofessional persons with caution.

TARTARIC ACID, *tar-tar'-ik*, an organic acid, obtained principally from the crude tartar formed on the inside of the casks in which wine is stored. It is much used in medicine, the dose being from 10 to 30 grains in water. One of its principal uses is to form the acid ingredient of effervescing mixtures of various kinds, and for this purpose, it is well adapted, wholesome and cheap. Tartaric acid is a dibasic, and exhibits a strong tendency to form double salts, of which there are several varieties. The most important salts of this acid are *bitartrate of potash*, or pure cream of tartar. (See POTASH.) *Tartrate of potash and soda*, or *Rochelle salt*, which is much used in medicine as an aperient (see POTASH), and *tartrate of potash and antimony*, or tartar emetic, which has long been extensively used in medicine. (See ANTIMONY.)

TASTE. (See TONGUE.)

TAXIS, *taks'-is* [Gr. *tasso*, to put in order], the operation of reducing a rupture by the continued pressure of the hand. (See RUPTURE.)

TEA, *tee* [Chinese *tcha, cha, tha*]. *Thea* or *tea*, in Botany, is the typical genus of the Nat. order *Theaceæ*. The properties of tea depend chiefly upon the presence of a principle called *theine*, which is identical with *caffeine* in coffee. (See CAFFEINE.) Tea is well-known for its refreshing and exhilarating effects. It acts as a sedative on the nervous system, and will often remove headache. When too much or too frequently indulged in, however, its effects are injurious on the nervous system, and it produces forms of dyspepsia. In persons unaccustomed to it, it frequently occasions wakefulness. In general, tea is unsuitable for children, while of benefit to the old. Green tea is so greatly adulterated, that although there certainly is a genuine preparation of this kind, it seems doubtful whether any is sold pure.

The action of tea, in exciting mental phenomena, is equally remarkable with its influences upon the body. Most students are familiar with its power of clearing the mind, and facilitating its working; many, too, have experienced its baneful effect, in preventing sleep and occasioning mental irritability. Many cases of hypochondriasis are traceable to the inordinate use of tea. Generally speaking, however, black tea, when

taken in moderation, produces effects at once agreeable and beneficial. Tea—especially green tea—often disagrees with those having a tendency to palpitation of the heart. It has been strongly recommended by Dr. Edward Smith to give a strong infusion of tea frequently in cases of sun-stroke, as it stimulates the nervous and respiratory systems, and increases the activity of the skin—all most important desiderata in this disorder. (See COFFEE, BREAKFAST, SUPPER; CAFFEINE, OR THEINE.)

TEA, OR SUPPER. (See SUPPER, OR TEA.)

TEARS, *teerz* [Lat. *lacrymæ*]. The watery saline secretion named the tears, is formed by the lachrymal gland (see EYE), which is situated in the outer and upper corner of the socket, or orbit. The secretion is continually passing over the fore-part of the eye-ball, keeping it clear, bright, and free from dirt, and facilitating the movements of the eyelids, any superfluity of moisture being taken up at the inner angle of the lids, and conveyed into the nose. (See EYE.)

TEETH, *teeth* [Ang.-Sax. *teth*; Lat. *dentes*; Gr. *odontes*], are certain hard bodies inserted in the jaws, and serving to masticate the food. Every tooth consists of two hard parts; one external, white, uniform, somewhat like ivory; the other internal, somewhat like the compact structure of bone. The former, which is called the enamel, is very close in texture, perfectly uniform and homogeneous, yet presenting a fibrous arrangement. It is seen only on the body of the tooth, the upper and outer part of which consists of this substance. The internal portion of the tooth and the root consist of close-grained bony matter, as dense as the compact walls of the long bones. In the interior of the bony part of each tooth is a cavity, which descends into the root and communicates at its extremity with the outer surface by openings corresponding to the number of branches into which the tooth is divided. This cavity, which is large in young or newly-formed teeth, and small in those which are old, contains a delicate vascular membrane, which has been named the pulp of the tooth. In the child, the teeth usually begin to cut through the gum about the sixth or seventh month after birth, and the temporary or deciduous set of teeth, twenty in number, are generally completed by the end of the third year. The period of dentition is usually a period of disordered health to children, especially if anything occurs to prevent the ready yielding of the gum to the pressure of the tooth below. (See DENTITION.) The deciduous teeth begin to fall out about the age of seven or eight, and are replaced by the adult or permanent set. These are thirty-two in number, or sixteen in each jaw; namely, four incisors or front teeth, two cuspidati or canine teeth, four bicuspidati, and six molars. The last two molars are called *dentes sapientie*, or wisdom teeth, on account of their not making their appearance till about

the age of eighteen or twenty, or later, when one is supposed to have reached the years of discretion. There are a few instances on record of a third partial teething even in old age.

Care of the teeth.—The carelessness or neglect in the preservation of the teeth, which prevails among all classes, can result only from ignorance of the important purposes they subserve in the animal economy, and of how closely their perfection and efficiency are linked with health; there is no question that the possession of a good set of teeth may make all the difference between a hale and prolonged old age, and premature decay of the powers of life.

There is no more certain cause of decay in teeth than indigestion, and particularly if the saliva becomes acid. (See *Dyspepsia*.) In no way is it possible to remove the continually-forming incrustations on the teeth but by the tooth-brush, which should be used regularly after each meal. When the gums become spongy, and the teeth inclined to loosen, it may be well to use some astringent application for the purpose of strengthening the gums. A few drops of the tincture of myrrh on the tooth-brush, is the best application in most cases. (See *Dentifrice*.)

The regular use of the toothpick after each meal—the quill being the best—is quite as important as the use of the brush.

Dentistry has been brought to great perfection in this country, and the masses of the people are fast becoming educated in its importance. Those who value their teeth as they should, will have them thoroughly examined by their dentist, at least once a year; and where cavities exist—though small—have them filled, and thus effectually check decay. And those who have any regard for their health, comfort or appearance, should avail themselves of artificial teeth in the absence of natural ones.

As gold filling is not affected by chemical action, it is the most effectual in preserving the teeth, the most durable, and in the end the most economical. A good gold filling will often last most of a lifetime.

Toothache.—When, in the course of decay, the cavity of the tooth, which contains the nerve pulp, is opened into, toothache begins. Undoubtedly, extraction is the most certain cure for toothache, and when a tooth is so utterly decayed that it cannot be filled, and is of no use, its removal cannot too soon be submitted to. The aching of a decayed tooth is very often excited by cold, by disorder of the digestive organs, etc.; when, therefore, the pain commences, the possibility of such causes should be investigated, and if they exist, they should be rectified. If, however, after this has been done, the neuralgic irritation still continues, it may be advisable to give quinine, and also opium. The applications used to cure toothache would make a long list; among the latest,

chloroform and creasote are the most useful. Strong ammonia is also sometimes used with success. The most effectual application which the author has ever used, is composed of creasote and strong solution of ammonia, of each 1 part, tincture of myrrh 2 parts. These liquid applications are best introduced into the decayed tooth by means of a small pellet of cotton wool, soaked in them, and lightly laid in the cavity. When the gums are much inflamed in toothache, much relief is sometimes given by lancing them freely around the tooth. (See DENTITION, FORCEPS, BALSAMODENDRON, CHLOROFORM, ETC.)

TEETHING. (See DENTITION.)

TEMPER, *tem'-pur*, this is the disposition or constitution of the mind, particularly with regard to the passions and affections; thus we say a calm, hasty, or fretful temper: how much it contributes to make or mar the happiness of man we are fully aware, but its effect upon the bodily health is not perhaps so open to observation, although the medical man frequently has occasion to notice, and allow for it, in his diagnosis of disease. The patient of a calm contented disposition is much more easy to treat than one who is fretful and irritable, giving way frequently to gusts of passion and fits of impatience; and very often the cure of a malady is greatly retarded, if not rendered altogether impossible, by want of control over the temper.

It is generally admitted by medical men that the action of the heart is greatly influenced by violent mental emotions, and those who give way to strong passions always run a great risk of laying the foundations of disease in that important organ, if they do not at once suffer the punishment of their unbridled license. (See PASSION, PASSIONS; HEART, DISEASES OF THE.)

TEMPERAMENT, *tem'-pur-a-ment* [Lat. *temperamentum*], is a term which took its origin in the earlier stages of medical science, when the constitution of the body was supposed to depend upon the proportional mixture or tempering of the four principal fluids or humors—the blood, the phlegm or lymph, the yellow, and the black bile. Hence, corresponding with these, there were the sanguine, the phlegmatic or lymphatic, the bilious, and the melancholic. As these distinctions are applicable to certain recognized types of constitution, they are still retained, with the addition of the nervous temperament. The sanguine temperament is usually distinguished by the ruddy complexion, blue eyes, and brown hair, and generally full large habit of body, with vigorous performance of the functions of life. The phlegmatic, generally now called lymphatic temperament, is almost the reverse of the first. The functions of life are usually more feebly performed, probably owing to the deficient quality of the blood, the skin is pale, the hair light in color. The

choleric or bilious temperament is characterized by black, often curling, hair and beard, the latter being generally thick and strong; the eyes dark, the complexion ruddy though dark, and the circulation good. In the melancholic temperament the hair is black but straight, the skin is dark, but wants the red tinge of the true bilious; the circulation and the functions are slow and languid. The above temperaments are not unfrequently met with, strongly defined in individuals, but in the majority they are mixed up one with another.

Viewing temperament as a predisposing cause of disease, we may say that sanguine persons are more liable to acute inflammation than others; nervous, to mental disorders and affections of the nerves; phlegmatic, to scrofula; phlegmatico-sanguine, to gout; and bilious, to hypochondria, and disorders of the digestive organs. (See DISEASE, HEREDITARY TENDENCY, COMPLEXION, HAIR, BEARD, ETC.)

TEMPERATURE, *tem'-per-a-ture* [Lat. *tempero*, to mix various things in due proportion]. The comparative degree of active heat accumulated in a body as measured by an instrument, or by its effects on other bodies. (See HEAT, THERMOMETER, COLD, CLIMATE.)

For the proper regulation of temperature, see HOUSES, SICK-ROOM, ETC.

TEMPERATURE OF THE HUMAN BODY. (See HEAT.)

TEMPERATURE OF THE SICK-ROOM. (See SICK-ROOM.)

TEMPLES, *tem'-plz* [Lat. *tempus*, time], are the lateral and flat parts of the head above the ears; so called because time, or the age of an individual, is denoted by the hair becoming first gray here. (See ANATOMY.)

TEMPORAL, *tem'-po-ral* [Lat. *temporalis*], connected with the temples. (See TEMPLES.)

TENACULUM. (See INSTRUMENTS, SURGICAL.)

TENDENCY TO HEALTH. (See DISEASE.)

TENDERNESS, *ten'-dur-nes*, on pressure of any portion of the body, is a symptom which is always much regarded in the investigation of disease, seeing that it is in most instances, if not in all, indicative of irritation or acute inflammation.

TENDONS, *ten'-dunz* [Lat. *tendo*, I stretch], are the strong fibrous extensions or "cords," by means of which the muscles are attached to the bones. All tendons are liable to be divided by wound or by rupture; in these cases the nature of the accident is indicated by the loss of power over the limb or members. The treatment required is the relaxation of all the muscles which are connected with the injured part, for a sufficient period to permit union.

TENESMUS, *te-néz'-mus* [Gr. *teino*, to strain], is the sensation in the rectum (see RECTUM), which causes involuntary straining, or effort to

empty the bowels. It is a frequent symptom in diarrhœa, dysentery, etc. (See STOOLS, DIARRHŒA, DYSENTERY, BILIOUS CHOLERA, ETC.)

TERTIAN AGUE, *ter'-shan*, a certain form of ague. (See AGUE.)

TESTICLES, *tes'-te-klz* [Lat. *testiculus*, *testis*; *testis*, a witness], the male organs, are liable to various affections. Inflammation or orchitis, is accompanied with severe pain and swelling; it requires the treatment of inflammation generally; leeching, fomentation, poultices, calomel and Dover's powder, and aperients, with perfect rest in bed and low diet. Enlargement of the veins (see VEINS), accumulation of fluid (see HYDROCELE), and various chronic enlargements and diseases, occur in connection with these glands, but, for all, a medical man's attendance is absolutely necessary. In the meantime, if the symptoms are urgent and painful, perfect rest in bed, avoidance of all stimulants, and attention to the state of the bowels are the best measures. If circumstances prevent absolute rest, support should be given by a bag-truss.

TETANUS, *tet'-a-nus* [Gr. *teianos*, from *teino*, to strain], is a disease characterized by a violent and rigid spasm of many or all of the muscles of voluntary motion. It frequently arises from some irritation of the nerves, in consequence of local injury by puncture, incision, or laceration, but it is also sometimes occasioned by exposure to cold and damp. The most common form of the disease is known as lock-jaw (which see). Frequently, however, the disease extends farther, and the muscles of the spine become affected, so as to bend the body forcibly backwards, or, on the other hand, the muscles of the abdomen are affected, and the body bent forwards; and sometimes the muscles both before and behind are affected. These spasms are attended with the most severe pain, but seldom with any fever. This disease is frequently fatal, and, unfortunately, it too often resists every mode of treatment. For *treatment* see LOCK-JAW.

TETTER. (See PSORIASIS.)

TEXAS, CLIMATE OF. (See CLIMATE.)

THEINE. (See CAFFEINE OR THEINE.)

THE PURPLES. (See PURPURA.)

THERAPEUTICS, *ther-a-pu'-tiks* [Gr. *therapeuo*, to heal]. Therapeutics is the art and science of the application of remedies for the cure of disease. (See DISEASE, MEDICINE.)

THERMOMETER, *ther-mom'-e-tur* [Gr. *therma*, heat, and *metron*, a measure]. An instrument for determining the degree of active heat existing in the atmosphere or other bodies; there are several kinds, but the one generally used is Fahrenheit's. The thermometer has lately been brought prominently forward in the diagnosis of disease. The difference of a few degrees in the temperature of the body of the patient is full of good or evil. Handy pocket thermometers for placing in the

axilla (see AXILLA) are now manufactured, and nurses should be instructed in their use.

For the proper regulation of the temperature of rooms, etc., see HOUSES, SICK-ROOM, ETC.

THIGH, *thi* [Ang.-Sax. *theoh*, *thegh*], the portion of the body which extends from the hip to the knee, is composed principally of a mass of fleshy powerful muscles. The fold—the groin—at the junction of the thigh with the trunk, is one of the most important regions of the body in a surgical point of view, for here is the most usual seat of rupture (see RUPTURE), and at this point, towards the lower end, the large vessels which pass to and from the lower extremity, lie very superficially. Wounds of the groin are, therefore, particularly dangerous, and if the main artery be perforated, life is placed in the most immediate peril. (See ARTERY.) A little below the groin, the vessel becomes more deeply imbedded in the muscles, and ultimately passes round the inner side of the thigh-bone to reach the ham. The thigh-bones are the longest bones of the skeleton; from their ball and socket joint at the hip, they incline inwards towards one another at the knee. (See HIP-JOINT, KNEE, PELVIS, FRACTURES, DISLOCATIONS, ETC.)

THIRST, *thurst* [Ang.-Sax. *thurst*], in the animal economy is that peculiar sensation which attends the desire to drink. During the operation of the animal functions a great quantity of moisture is consumed, the loss of which must be supplied; and thirst is the voice of nature calling upon the animal to supply the place of the lost moisture by drinking. Water is the proper object of this desire; and the quantity necessary for this purpose varies greatly according to the different circumstances of age, sex, and temperament; and still more according to the nature of the food taken, the state of the atmosphere, the mode of life, and the custom of the individual. An outward application of moisture is found to diminish thirst; and sailors have been able to sustain life by bathing in the sea. Thirst is a sensation much more difficult to bear than hunger, leading from restlessness to anxiety, despair, and madness. (See HUNGER.)

THORACIC DUCT, *tho-ras'-ik*, is the great trunk formed by the junction of the absorbent vessels; it is about eighteen or twenty inches in length, and near its orifice, in the abdomen, as large as a goose-quill, but as it ascends it diminishes in size.

THORAX, *tho'-raks* [Gr. for the chest.] (See CHEST.)

THORN-APPLE. (See DATURA STRAMONIUM.)

THROAT, *throte* [Ang.-Sax. *throte*]. The throat comprehends the parts situated at the back of the mouth, and includes the uvula and soft palate, with its arches, and the tonsils; also the pharynx or funnel-like

muscular expansion at the top of the gullet. It is generally understood to mean that part of the human frame in which are situated the passages for food and breath, namely, the gullet and windpipe; or all that hollow cavity which may be looked into when the mouth is wide open. For further information, see NECK, ALIMENTARY CANAL, ŒSOPHAGUS, TRACHEA, MOUTH, TONGUE, PALATE, TONSILS, UVULA, LARYNX, PHARYNX, FAUCES, DIGESTION, CUT-THROAT, FOREIGN BODIES IN THE GULLET, FOREIGN BODIES IN THE AIR-PASSAGES, SORE THROAT, APHONIA, ETC.

THROAT, CUT. (See CUT-THROAT.)

THRUSH, OR APHTHA INFANTUM, *thrush* [Ang.-Sax. *thrisc*], is characterized by small, round, white ulcers, resembling particles of curd, appearing upon the tongue and other parts of the mouth, and sometimes extending down the œsophagus. These ulcers are known as *aphthæ*. This is a disease frequent with children during the period of lactation, and is usually attended with other symptoms, as drowsiness, sickness, diarrhœa, and some feverishness. It generally runs its course in eight or ten days, and is not attended with much danger. It is generally owing to improper diet, or bad milk, and is to be treated by light nourishing food and tonics, such as citrate of iron and quinine, 1 grain three times a day. Where the aphthæ are troublesome, they may be painted with glycerine or borax. Chlorate of potash, 1 teaspoonful to 1 teacupful of water, and given in teaspoonful doses every two hours, will be found useful. Aphthæ sometimes occur in adults, denoting general debility, or a deranged state of the digestive organs; and occurring in the course of other diseases, as phthisis, they frequently cause death. (See STOMATITIS, NURSING SORE MOUTH.)

THUJA OCCIDENTALIS, *thu'-ja ok-se-den'-ta-lis*, commonly known as arbor vitæ, is an evergreen tree growing all over this country. In the form of decoction, the leaves have been found useful in intermittent fever, also in scurvy and rheumatism. It has lately acquired a reputation as a remedy in cancerous and other malignant affections. It is worthy of a thorough trial. Dose: of the decoction, 1 to 2 fluid ounces; of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful, three or four times a day.

THYME. (See THYMUS VULGARIS.)

THYMUS VULGARIS, *thi'-mus vul-ga'-ris*, or thyme. A small shrub belonging to the Nat. order *Lamiaceæ*. Thyme is indigenous to the south of Europe, and with us is cultivated in gardens. The whole herb is used, and should be collected when in flower.

It is tonic, carminative, emmenagogue and antispasmodic, and is used as a stimulating tonic in hysteria, flatulence, colic, headache, painful menstruation, etc. It is beneficial in an irritable and weak state of the stomach, in convalescence from exhausting diseases, promotes the

appetite and favors the early re-establishment of digestion. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the oil, 2 to 10 drops on sugar; of the infusion, 1 to 3 fluid ounces. (See INFUSION.)

TIBIA, *tib'-e-a* [literally, a flute or pipe], the great bone of the leg, commonly called the shin-bone. (See ANATOMY, LEG.)

TIC DOULOUREUX, *tik'-doo-loo-roo'*, facial neuralgia. (See NEURALGIA.)

TIGHT-LACING. (See CHEST, EDUCATION.)

TIN, *tin* [Lat. *stannum*], symbol Sn., is a white, malleable, easily fusible metal, not much affected by exposure to dry or moist air at ordinary temperatures, but becoming oxidized superficially when heated, burning with a brilliant flame if the temperature be raised sufficiently high. It is seldom used in medicine

TINCTURES, *tingkt'-yurz* [Lat. *tingtura*,] are solutions of medicinal substances in alcoholic spirit, either "rectified" or "proof." Different strengths are employed according to the solubility in spirit, of the active principles of the drug from which the tincture is made. The general directions for making tinctures are, that the drug, if it is in solid substance, should be divided into small fragments, or into coarse or fine powder, as the case may be; it is then to be macerated in the spirit in a closed bottle for a certain period—generally from seven days to a fortnight, and after that strained through a cloth, or filtered through paper, or both.

As medicinal preparations, tinctures, like fluid extracts, possess many special advantages, not the least being their keeping properties. Since the introduction of the fluid extracts, tinctures are not so much used. Unless stimulant action is required, or at least admissible, a medicine ought never to be given in tincture, if the dose which must be administered involves an amount of spirit which will be felt by the system. (See EXTRACTS, DECOCTION, INFUSION.)

TISSUE, *tish'-u* [Lat.], in Anatomy, texture, or organization of parts. The peculiar intimate structure of a part is called its tissue. (See ANATOMY.)

TOASTED BREAD, *toste'-ed*, if not cut too thick, and if toasted slowly, is probably somewhat more digestible than simple bread—it is more thoroughly cooked. Toast, when soaked with melted butter, is one of the most unwholesome and irritating articles of diet an invalid can take.

TOBACCO, *to-bak'-ko* [from the Indian word *tabacos*, the name which the Caribees gave to the pipe in which they smoked the plant; Lat. *tabacum*], is the common name of the plants comprised in the genus *Nicotiana*. Tobacco is a powerful sedative and narcotic, but in excess it produces nausea, vomiting, diarrhœa, cold sweats, headache, extreme

debility, and even convulsions. It particularly affects the heart, causing frequently great depression. It is useful in relieving violent spasmodic constriction, and hence it is sometimes recommended to be smoked in cases of asthma. It sometimes also relieves obstinate constipation or suppression of urine. It is occasionally used as snuff for affections of the head. Some derive peculiar restorative influences from its use, experiencing, especially under conditions of exhaustion or irritability, a mixture of stimulant and sedative action which is described as peculiarly grateful.

The most obvious injury which is apt to result from *smoking*, more or less, according to the extent in which it is indulged, is disorder and irritation of the digestive organs, frequently accompanied with depression of spirits, etc. The habit of *chewing* tobacco acts as an excitant upon the salivary glands; if the saliva is swallowed, the narcotic properties of the drug are called into action. The waste of saliva in *chewing* and *smoking*, may explain in a great measure, for the disordered digestion from which so many suffer who use tobacco constantly. When the habit of *snuffing* causes injury, it is also more usually to the digestive organs, and in some persons it certainly gives rise to dyspepsia; indeed, it may occasion malignant disease of the stomach and liver. Under article LIP, the occurrence of cancer, in those who habitually smoke from a short pipe, was noticed. The injury to the teeth from smoking, and especially their discoloration, is notorious. Although the use of tobacco may be indulged in by some, perhaps by many, and to a considerable extent, without very evident injury, there is a large proportion of constitutions to which it is almost a direct poison, sapping the whole foundations of health.

In any case in which the use of tobacco has produced the symptoms described at the commencement of this article in alarming degree, general treatment, somewhat similar to that prescribed in poisoning from belladonna may be employed. (See POISONS AND THEIR ANTIDOTES.)

Tobacco contains a volatile alkaloid called nicotine. (See NICOTINE, NICOTIANA.)

TOE-NAILS, INGROWING OF THE. (See NAILS, INGROWING OF THE.)

TOILET, *toi'-let* [Fr. *toilette*]. The toilet, from a hygienic view, must be considered in its relation to the skin, hair, beard, teeth, etc. As these subjects have been sufficiently treated under their respective heads, we would refer the reader to them, and other articles relating thereto. (See SKIN, HAIR, BALDNESS, BEARD, TEETH, BATHS AND BATHING, ABLUTION, LIP, COSMETIC, NAILS.)

TOLU. (See MYROSPERMUM, BALSAM.)

TOMATO, *to-mä'-to*, or *to-ma'-to* [*Solanum Lycopersicon*]. Like the potato, the tomato came originally from South America. The fruit contains an acid, a resinous substance, and an alkaloid. It is now much used as an article of food, and exerts a healthy influence upon the liver and biliary organs.

TONGUE, *tung* [Ang.-Sax. *tunge*]. The organ of speech and taste is composed of muscular fibres running through it in different directions, mingled with a considerable amount of cellular and fatty matter; it is abundantly supplied with vessels and nerves. The tongue is divided in the centre by a depressed line, the raphe. It is covered by a dense mucous membrane, continuous with that of the mouth, on which are numerous papillæ, small towards the tip, but becoming much enlarged towards the base of the tongue. At the tip, underneath, the tongue, as any may see in their own person, is confined by a bridle or tie, or frænum; at its root, the tongue is connected with a curved bone, the hyoid; at the base of the tongue is the epiglottis. (See THROAT, LARYNX, ETC.) Through this organization the tongue is not only enabled to assist in mastication, but it becomes the principal source of enjoyment in the taking of food that is agreeable to the taste.

The sense of taste resides in what are called the gustatory nerves, whose filaments are found in the papillæ of various size, which exist all over the upper surface of the tongue, especially towards the tip.

In a medical point of view, the tongue has to be regarded both with reference to its own disorders, and to the indications it affords of disorder in other parts of the system.

Inflammation of the tongue is not common. It may result from various causes, as mechanical injury, exposure to cold, the use of mercury, etc. When it occurs, the most prominent symptom, in addition to the constitutional affection, is the enormous swelling, which causes the organ to protrude from the mouth, and at the same time threatens suffocation; it is, therefore, a very serious affection, and one which requires the immediate attention of a medical man. In the severe forms, leeches may be applied to the part, but the remedial measure which gives most relief is to make two free longitudinal incisions down each side of the tongue; these, of course, admit of copious bleeding, but as the tongue diminishes in size, the cuts and the flow of blood also diminish. The remedy is one which might be practised by an unprofessional person in a case of *urgent necessity*; at least it would be better to do it, even at some risk, than to permit an individual to die of suffocation, whilst medical assistance was being procured. In mild cases, ice and the use of purgatives will afford relief. A gargle of the chlorate of potash will also be found useful. (See CHLORATE OF POTASH.)

Ulceration of the tongue may occur as a symptom of digestive disorder, as a consequence of mercurial salivation, or from local causes, such as the presence of decayed teeth, especially with ragged or sharp edges. Of course, when teeth stumps are the exciting cause, they should at once be removed. In any cases of ulceration, the local treatment recommended under THRUSH, NURSING SORE MOUTH, SALIVATION, CHLORATE OF POTASH, and GARGLES, may be pursued with advantage.

Cancer of the tongue is one of the most distressing maladies to which humanity is liable; it may in some cases be removed with advantage by operation; at all events, any persistent sore upon the organ should be submitted, without delay, to the examination of a medical man. The disease is most frequent in women. Excision of the whole tongue for cancer is an operation which has been several times performed, although it is still an unsettled question among surgeons whether or not it is justifiable. (See CANCER.)

The condition and appearance of the tongue are indications almost always consulted by a medical man in investigating a case of disease. It is sometimes *loaded*, as it is termed, the upper surface being covered with a layer of mucous substance which may be scraped off with a tongue scraper; this indicates a foul stomach; in severe cases of dyspepsia this coating often becomes very thick and peels off, leaving the tongue red, moist, and tender; sometimes the coating is dark brown, resembling fibres, which admit of being separated by the fingers; it is then said to be *furred*, and this is symptomatic of great local irritation arising from inflammation. In feverish conditions of the system the tongue becomes very dry and hot, parched, as it is called; if clammy and viscid, there is usually derangement of the digestive functions; a yellow tinge on the coating of the tongue indicates biliary disorder; a thin creamy-white, inflammatory disease in the abdomen; in sore throat we often find it of a dingy whitish color; in scarlet fever we have elongated papillæ, presenting bright red spots; and in some forms of intestinal irritation and hemorrhage, it is morbidly clean and red. In anæmic patients we find this organ partaking of the general condition of the system, being pale and flaccid; in paralysis it is drawn on one side; in delirium tremens, and nervous affections, it is tremulous; and in low stages of fever it becomes almost black, and cannot be protruded. Thus to the instructed eye the tongue affords a pretty sure indication of the state of the system. When the appearances of the tongue, however, are admitted as evidence, consideration must always be given to the natural state of the organ in the individual, for some never have a clean tongue, whilst in others it scarcely becomes furred, even when considerable disorder is going on in the system.

TONGUE-TIED. (See CHILDREN, SPEECH.)

TONICS, *ton'-iks* [Gr. *tonoo*, I strengthen], are medicines employed to improve the tone or strength of the system by acting on the muscular fibres through the nerves. Tonics are stimulants of a certain kind, but differ from ordinary stimulants in the permanence of their effects. They are usually prescribed in small doses frequently repeated, and are persevered in for some time. It is generally necessary to begin with a mild tonic, before taking one more powerful. If carried to excess or too long-continued, tonics act as irritants, weaken the system, or induce disease. Among the tonics in more common use may be mentioned cinchona, quassia, gentian, chiretta, cusparia, calumba, chamomile, cascarilla, salicine, strychnine (which see), certain mineral waters, the various preparations of iron, bismuth, copper, zinc, arsenic; hydrochloric, nitric, and phosphoric acids (which see). The non-medicinal tonics are COLD, in its various forms and applications (which see), EXERCISE (which see), and mental emotions of a pleasing and stimulating character. (See EXCITANTS, PASSIONS, RECREATION, TRAVELLING, ETC.) For further information the reader is referred to the individual articles on the various tonics, which will be found in their proper places in this work. (See also BITTERS, STIMULANTS; STIMULANTS, ALCOHOLIC; PLEASURE, HEALTH RESORTS, MINERAL WATERS, ETC.)

TONSILLITIS. (See QUINSY.)

TONSILS, *ton'-silz* [Lat. *tonsillæ*] are the almond-shaped bodies situated on each side of the "fauces" (see THROAT), and between the folds or "pillars" of the soft palate (see PALATE). They are glands which secrete a mucous fluid.

The tonsils are liable to *inflammation*, constituting sore throat, or quinsy (see SORE THROAT, QUINSY). They may also be the seat of *ulcerations*, and often become enlarged. In the case of ulceration—astrigent gargles may be used, or if that fails, a solution of nitrate of silver, 10 grains to 1 ounce of rain water, may be applied occasionally, with a swab (a small piece of sponge attached to a rod), and any disorder of the general health attended to. (See GARGLES, CHLORATE OF POTASH.) *Enlargement of the tonsils* is a very common affection, particularly in scrofulous constitutions, and may come on very early in life. (See SORE THROAT, QUINSY.) When the enlargement is great, and causes much inconvenience, it is remedied by the simple, and not very painful, operation of slicing off the most prominent portion of each gland; this of course must be done by a surgeon. Much may be done, however, to reduce the size of the glands, by the persevering use of astrigent gargles (see GARGLES, CHLORATE OF POTASH), and by attention to any deficiency, as want of tone, in the general health. There is a special

instrument by which caustic is safely and efficiently applied to diminish the enlarged tonsils, but it is doubtful whether the amount of pain is less than by cutting.

TOOTHACHE. (See TEETH.)

TOOTH-RASH. (See RED-GUM.)

TOURNIQUET, *tur'-ne-ket* [from the French, to turn], is an instrument used by surgeons to stop the flow of blood, in a limb, during operations, or after accidents. For the latter purpose, the tourniquet might be found of great service in out-of-the-way places, and might well form an addition to the outfit of the emigrant. (See ARTERY, ARTERIAL HEMORRHAGE; INSTRUMENTS, SURGICAL.)

TRACHEA, OR WINDPIPE, *tra'-ke-a* [Gr. *tracheia*, from *trachus*, rough], commonly called windpipe, is the cartilaginous and membranous canal through which the air passes into the lungs. Its upper part is called the larynx, the uppermost and smallest part of which is called the epiglottis, being placed over the glottis, or mouth of the larynx, and serving to close the passage to the lungs in the act of swallowing. (See LARYNX.) From the lower end of the larynx the canal takes the name of trachea, and extends as far down as the fourth or fifth vertebra of the back, where it divides into two branches, which are the right and left bronchial tubes. Like the larynx, it is formed of cartilages, united to each other by means of very elastic ligamentous fibres. It is also furnished with fleshy or muscular fibres, some of which pass through its whole extent longitudinally, while others are carried round it in a circular direction; and hence it may shorten or lengthen itself, or contract or dilate its passage. (See THROAT, FOREIGN BODIES IN AIR-PASSAGES, TRACHEOTOMY.)

TRACHEOTOMY, OR BRONCHOTOMY, *tra-ke-ot'-o-me* [Gr. *tracheia*, and *temno*, I cut], is the operation of cutting into the trachea, or windpipe, for the purpose of admitting air into the lungs when the upper part of the air-passages is obstructed, or for the extraction of foreign bodies from the trachea. It is necessary in many diseases, and, though not without danger, it is often the means of affording instant relief. After the opening is effected, a small silver tube is introduced, through which the operation of breathing is carried on. (See TRACHEA.)

TRAILING ARBUTUS. (See UVA URSI.)

TRAINING, *trane'-ing*, is a system which has been practised, both in ancient and modern times, for bringing the animal body up to as high a pitch of health, tone, and muscular power as possible. If the ulterior purposes for which training is practised in these days are neither desirable nor elevated, the system itself, and the effects of it, are worthy of attention as bearing upon the subject of health and development.

Of course those in whom great muscular power is desired as the result of training, must possess at first some amount of constitutional vigor, good assimilative powers, and be free from disease, or even disorder of a temporary nature; if the latter should exist, it must be removed by medicine or otherwise. It is now pretty generally agreed, however, even among professional trainers themselves, that some of their fanciful restrictions as to diet are quite unnecessary, and that common sense, after all, ought to guide one as to the quantity and quality of food taken. It is probable that fewer dangers to individuals will occur from the improved system, and also that the good condition obtained from a course of such judicious training will be more lasting. (See FOOD, DIET, EXERCISE, SLEEP, ABLUTION, BATHS AND BATHING; STIMULANTS, ALCOHOLIC; REGIMEN, HEALTH, ETC.)

TRANCE, CATALEPSY. (See CATALEPSY.)

TRANSFUSION, *trans-fu'-zhun* [Lat. *transfundo*, I pour from one vessel into another], in Surgery, is an operation sometimes had recourse to in cases of excessive loss of blood or extreme weakness, of injecting into the veins blood from a healthy individual. This is done by means of a syringe, so filled with blood as not to admit of even a bubble of air, inserted into one of the patient's veins at the bend of the arm, and injected very slowly and cautiously.

TRAVELLING, *trav'-el-ling*, is both an excitant and a tonic, and, as a remedial measure, in some cases offers advantages by no other mode attainable. (See RECREATION.) Most persons, when undergoing continued travelling, suffer from slight irritable feverishness of the system, particularly if the usual rest be interfered with; the effects of this are best counteracted by spare diet and avoidance of stimulants. Animal food, if taken at all, should be so, sparingly, and the best restorative, except, of course, in real debility, when wine is required, is a cup of tea or coffee. A warm bath at about 92° is an excellent soother of the system after travelling. (See HEALTH, HEALTH RESORTS, MINERAL WATERS, CLIMATE, ETC.)

TREES. (See SHADE TREES.)

TREMOR, OR TREMBLING, *tre'-mur* [Lat. *tremo*, to tremble], is a symptom and accompaniment of nervous debility and exhaustion, as exemplified in those who exhaust the system by the abuse of ardent spirits. In some diseases, such as fever, the occurrence of tremor is a grave symptom, indicative of giving way of the vital power. (See RIGOR, SHIVERING, DEBILITY, FEVER, INTemperance, ETC.)

TRICHINA, *tre-ki'-na*. The occurrence of some of the most dreadful accidents that have happened in the history of mankind, owing to the presence of a small microscopic worm in the muscles or flesh of certain

animals used in human food, has lately directed much attention to the above subject, so much so that the word trichina has become a sound of terror to many ears.

The worm is called the *Trichina spiralis* from its spiral form, being generally found coiled up in the muscles in a cork-screw shape. It can be distinctly seen by a microscope of low magnifying power; and, indeed, in certain states it can be seen by the naked eye as a minute speck studing the surface of the muscle containing it. When the worms are taken into the human stomach, they pierce through the coats of the stomach or intestines in their endeavors to find their way to the muscles, their natural habitat; and it may be easily imagined that their presence gives rise to symptoms of the most alarming nature, indicating not unfrequently inflammation of internal organs, which often ends fatally.

If the patient is enabled to survive this part of the process—viz., the boring through the stomach and bowels—the worms become imbedded or encapsuled in his muscles, and either give rise to severe symptoms from their presence there, or else remain quietly at rest, causing no other disturbance, perhaps, than pains, cramp in the muscles, etc.

Many remedies have been proposed for patients affected with *trichinosis*, but it is more than doubtful if any of them have had any effect whatever. Still, any cases suspected to be of such a nature ought at once to be submitted to a medical man.

The greatest care ought to be exercised in the cooking of meat of all kinds, but especially of pork.

The following results are given of some experiments on this subject, by Prof. Virchow, of Berlin: 1. Trichinæ are destroyed by the thorough salting of meat for a considerable time, and afterwards subjecting the sausages made from it to twenty-four hours' hot smoking. 2. They were, however, not destroyed by a three days' cold smoking; and it also appears that, when meat is boiled, they are not killed. 3. The trichina appears to be destroyed in cold smoked sausages which have been preserved for a considerable time; but this is somewhat doubtful.

TRICHINOSIS, *tre-ki-no'-sis*. A peculiarly fatal disease, caused by eating meat containing the parasite known as *Trichina spiralis*. (See TRICHINA.)

TRILLIUM PENDULUM, *tril'-le-um pen'-du-lum*, or bethroot, a perennial plant found growing abundantly in the Middle and Western States, and known in different localities by the common names birth-root, cough-root, wake-robin, and Indian balm. The root, which is the part used in medicine, is tonic, astringent and antiseptic. It is used in the whites, cough, asthma, and difficult breathing. The root made into a poultice, is of service in promoting healthy action in indolent and

ill-conditioned ulcers, and to check gangrene. Dose: of the fluid extract, 1 to 3 teaspoonfuls; of the infusion, 1 to 3 fluid ounces, three or four times a day. (See INFUSION.)

TRIOSTEUM PERFOLIATUM, *tri-os'-te-um per-fo'-le-a'-tum*, or fever-root, a plant belonging to the Nat. order *Caprifoliaceæ*. It is found in limestone soils throughout the United States, and is frequently known by the name of wild ipecac. The bark of the root is emetic, cathartic, tonic and diaphoretic. It has been recommended as a laxative tonic in dyspepsia, autumnal fevers, and in convalescence from febrile diseases. Dose: of the tincture, 1 to 2 teaspoonfuls; of the solid extract, from 5 to 15 grains; of the powder, from 20 grains to 1 dram.

TRITICUM REPENS, *trit'-e-kum re'-pens*, a plant belonging to the Nat. order *Gramineæ*, and commonly known as couch grass, dog's grass, and quitch grass; it is a troublesome weed found in most gardens and cultivated grounds. The root is the part used in medicine. It is demulcent and slightly aperient, and is highly recommended in irritable conditions of the bladder and urethra. The plant should be gathered in spring to be effectual. Dose: of the infusion or decoction, 2 to 4 fluid ounces, three or four times daily; of the fluid extract, 1 to 2 teaspoonfuls. (See DECOCTION, INFUSION.)

TROCHE, OR LOZENGE, *tro'-ke*, a hard compound of sugar and gum, which contains either simple flavoring, or some medicinal agent. The system of giving medicine in the lozenge form has fallen into comparative disuse.

TROPICS AND TROPICAL DISEASES, *trop'-iks* [Lat. *tropicus*, pertaining to a turning]. As might be expected, the forms and types of disease which occur in hot, tropical climates, are frequently very different from those which are met within this and other temperate regions. Under such articles as ACCLIMATIZATION, CLIMATE, BILIARY DISORDERS; CHOLERA, ASIATIC; BILIOUS CHOLERA, DYSENTERY, REMITTENT OR BILIOUS FEVER, HEAT, ETC., the reader will find information illustrative of the effects of a residence in a warm climate upon the system; to enter into the subject further, here, would answer no good purpose. (See also BERIBERI, FRAMBÆSIA, GEOGRAPHICAL DISTRIBUTION OF DISEASE.)

TRUSS, *trus* [Fr. *trousse*], is an instrument employed in cases of hernia to prevent the protrusion of the part. They are of different kinds, but in general they consist of a pad which presses on the seat of the injury, and a band or steel spring passing round the body and keeping it in its proper place. (See RUPTURE.)

TUBERCLE, *tu'-ber-kel* [Lat. *tuberculum*, a little tuber], is a peculiar

morbid product occurring in various textures of the body in scrofulous subjects, particularly in the lungs. (See CONSUMPTION.)

TUMOR, *tu'-mur* [Lat. *tumor*, from *tumeo*, to swell], in its widest acceptation, denotes a swelling of any kind on any part of the body; but it is commonly restricted to a swelling of a permanent nature, while such as arise from inflammation and disappear along with the cause are usually known as *tumefactions*. Tumors are commonly distinguished into *sarcomatous*, or such as are firm and of a fleshy consistence and *encysted*, consisting of a sac containing matter more or less pulpy or fluid. Of each of these surgeons distinguish several kinds. (See CANCER, CYST, SWELLING.)

TURKEY. (See POULTRY.)

TURKEY CORN. (See CORYDALIS FORMOSA.)

TURKISH-BATH. (See BATHS AND BATHING.)

TURMERIC. (See CURCUMA.)

TURNIP, *tur'-nip*. The turnip is nutritious, somewhat laxative and diuretic; it is, however, liable to disagree and cause flatulence in persons of weak digestion. (See BRASSICA.)

TURN OF LIFE. (See MENSTRUATION.)

TURPENTINE, *tur'-pen-tine* [Lat. *terebinthina*], a semi-solid resinous substance, which exudes from various species of pine on cutting incisions in the bark. There are several kinds of turpentine known in commerce; that obtained from the *Pinus Abies* constitutes common turpentine. It is used in medicine as a counter-irritant—acting like mustard—and is employed as a liniment in chronic inflammations, rheumatism, lumbago, sciatica, etc. Internally it is stimulant, diuretic, and diaphoretic, antispasmodic and vernifuge, and in large doses cathartic. It acts particularly upon the kidneys, sometimes producing *dangerous* symptoms when taken in large doses, and the purgative action is not fully developed. Dose. 10 to 30 drops in milk.

TUSSILAGO FARFARA, *tus-se-la'-go far'-fa-ra*, or coltsfoot, a plant belonging to the Nat. order *Compositæ*. It is indigenous to both Europe and America. The leaves and roots are the parts used in medicine; they are demulcent, tonic and expectorant, and have been found useful in coughs, asthma, whooping-cough, and other pulmonary affections. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 1 to 3 fluid ounces; of the syrup, 2 to 4 teaspoonfuls. (See INFUSION.)

TWINLEAF. (See JEFFERSONIA DIPHYLLA.)

TYMPANY, WIND-DROPSY, OR AIR-SWELLINGS, *tim'-pa-ne*, is unusual distension of the stomach and intestines with gas. This is apt to occur in fever and in acute inflammation within the abdomen. In such cases it is a symptom which must often be seriously regarded.

Tympany, however, sometimes occurs as a chronic affection. In any case, it may proceed to a great extent, distending enormously the whole abdomen and impeding the breathing. Injections of assafoetida, turpentine, or other stimulant aromatics give relief, and aromatics, sal-volatile, tincture of cardanoms, etc., are often given internally, but many cases derive more benefit from the mineral acids. (See INJECTION.)

TYPE OF A DISEASE, *tipe*, is the combination of characteristic, prominent symptoms, which mark all the cases of a prevailing disease, such as fever, etc. (See CHANGE OF TYPE.)

TYPHOID, ENTERIC, OR GASTRIC FEVER, *ti'-foïd*. One of the forms of continued fever, and formerly supposed to be identical with *typhus*, but now known to be an entirely distinct disease. Young persons, and those who have not yet attained the prime of life, are more subject to its attacks than those of riper years.

Causes.—Typhoid fever is due, as is the case with typhus, to the presence of some subtle poisonous material in the blood; but it still remains a very warinly-disputed point as to whether it spreads by contagion. The balance of evidence is certainly in favor of such a view; but its contagious properties are very slight, it being a very rare thing for one patient to catch the disease of another in the large wards of the metropolitan hospitals; and yet there are many cases on record which tend to establish the fact that it may be conveyed from one patient to another. In typhoid fever, the discharge from the bowels contains the specific poison, so that the excrements should not be allowed to stand in the sick-room; but, being previously mixed with chloride of lime, should be conveyed away at once. This distemper may be often traced to bad ventilation, or defective drainage, and in some cases to the use of impure drinking water. In all cases where this disease is rife in certain districts, three things should be carefully inquired into by competent men—viz., the ventilation, drainage, and water supply.

Symptoms.—For several days preceding the attack, the patient complains of languor and headache, which is soon followed by a feeling of chilliness, and very often vomiting and purging. The diarrhœa is a troublesome symptom all through the disease. There is great thirst, ringing in the ears, frequent pulse, red tongue, and great heat of the surface. Frequently one of the earliest symptoms is bleeding at the nose; the abdomen becomes swollen, and sounds when struck as if filled with air, and there is almost always more or less tenderness in the right iliac region. (See ABDOMEN.) Typhoid fever is marked by a peculiar eruption on various parts of the body, especially on the chest, back and abdomen. It comes out at the end of the eighth or twelfth day, and consists of a few small, circular, elevated and well-defined rose-colored

papules, disappearing on pressure, there being several crops produced, each composed of from twenty to thirty spots. The thermometer placed in the armpit often registers 105° or 106°. Twenty-two days is about the average duration of the disease.

Treatment.—Fresh air, cleanliness, an even temperature in the apartment (60° is about right), and frequently changing the position of the patient, are prerequisites in the management of typhoid fever. Depressant remedies are not well borne; the fever may be controlled by frequently sponging the surface, and the headache by the application of ice-water, vinegar and water, or Florida water, to the head. The diarrhœa should be controlled, not arrested; this may be done by the use of lime-water and milk, or by the following:

Take of Prepared chalk, in powder.....Two drams.
 Gum acacia, in powder.....Two drams.
 Tincture of catechu.....Three drams.
 Water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls after each stool. Should this mixture fail, the laudanum injection may be tried.

Take of Laudanum.....Twenty-five drops.
 Decoction of starch.....Four ounces.—*Mix.*

Make an injection for the bowels. Hot fomentations may be applied to the abdomen, if there is much pain, and should there be any hemorrhage from the bowels, as is often the case, give the following:

Take of Turpentine.....Two drams.
 Mucilage of acacia.....Three ounces.
 Pure water.....Three ounces.—*Mix.*

Give 2 tablespoonfuls every four hours. If the above should fail in arresting the hemorrhage, try the following:

Take of Tannic acid.....One dram.
 Dilute sulphuric acid.....One dram.
 Water.....Six ounces.—*Mix.*

Give 2 tablespoonfuls every three hours. An excellent plan of treatment in both typhoid and typhus fevers is to give quinine and nitro-muriatic acid, as follows:

Take of Sulphate of quinine.....Fifteen grains.
 Dilute nitro-muriatic acid.....Forty drops.
 Water.....Eight ounces.—*Mix.*

Give 2 tablespoonfuls every four hours. Iced lemonade or barley-water may be given as a drink, and the diet must be nourishing and given in liquid form. Beef-tea, beef essence, animal broths, calves' foot jelly, milk, with other suitable preparations, described under article COOKERY FOR THE SICK, must form the chief part of the diet. When any marked failure of the circulation occurs, stimulants must be given,

wine, brandy or whiskey, and carbonate of ammonia, in 5-grain doses, every three or four hours.

The delirium, which is often of a wild and noisy character, and accompanied with a great deal of restlessness, may be treated as follows :

Take of Battley's solution of opium....Twenty drops.

WaterOne and a half ounce.—*Mix.*

Make a draught, to be taken at bedtime and at intervals of not less than four or six hours, if necessary. One or two doses of bromide of potassium, 15 to 20 grains each, with an interval of two hours between, will often succeed better than the opiate.

Preventive treatment.—This consists in thoroughly ventilating all the apartments of the dwelling, frequently whitewashing the walls and ceilings, and cleaning the curtains, carpets, mats, etc., and regularly disinfecting all cellars, closets, privies, drains, sewers, cisterns, and other places from which unwholesome odors may proceed. The greatest care should be taken to see that the water is not contaminated with any impurity whatever. Persons who live in healthy localities, and take these precautions, are not likely to be troubled with either typhoid or typhus fevers. (See FEVER, BROMO-CHLORALUM, DISINFECTANTS, BED-SORES, CONVALESCENCE, TYPHUS FEVER, ETC.)

TYPHUS FEVER, *ti'-fus* [Gr. *tupho*, I smoulder, or burn and smoke without 'vent'], is a kind of continued fever, characterized by the ordinary symptoms of fever, with debility in the nervous and vascular systems and a tendency in the fluids to putrefaction. It has been known by the following different names : jail or gaol fever, camp fever, ship fever, famine fever and hospital fever.

Causes.—Any of the ordinary causes of fever may give rise to typhus, but by far the most common cause of typhus is contagion of febrile miasm, the activity of which is much increased by the crowding in close and ill-ventilated places ; filth, insufficient nutriment, and other causes tending to depress the vital power. It is eminently contagious and infectious, and often prevails epidemically.

Symptoms.—It does not always commence in the same way, and sometimes it may be several days before the disease assumes its proper aspect, during which the patient may continue his ordinary occupations, but complaining of chilliness, nausea, thirst, loss of appetite, languor, and headache. Frequently, however, the precursory stage is short, or altogether wanting, and it commences with symptoms which are common to many acute diseases. Sometimes it sets in with a shivering fit or a severe headache, accompanied with great prostration and muscular pains in various parts. There are also dryness and heat of skin, thirst, constipation, and rapid pulse, with great irritability and restlessness

towards the evening. Sometimes, even during the first stage of the disorder, the prostration of strength is so great that the patient lies on his back motionless, and insensible to all that is going on around him. Towards the end of the first week, the eruption peculiar to typhus begins to show itself. It consists of irregular spots of a dusky or mulberry hue, disappearing on pressure, and feeling as if slightly raised above the skin. They may be few and single, or numerous and large, owing to the coalescence of several of them; their number and depth of color being usually in proportion to the severity of the attack. In a day or two they become of a brick-dust color, and remain till the end of the fever. They are rarely absent in adults, but in children, particularly in mild cases, they are not unfrequently absent.

During the second week the pulse becomes more frequent, weaker and more compressible, the tongue darker and browner, and the voluntary movements very much weakened. The voice becomes feeble, and the patient can scarcely utter an audible sound; perhaps he may be unable to swallow, which is always regarded as a very bad symptom. During this stage there is great deficiency of sensation and insensibility to impressions. It is in the course of the second week that the disease is most apt to terminate fatally. As it approaches this termination, a peculiar fœtor is exhaled by the patient's body; his tongue becomes dry, black, and fissured; his teeth are covered with dark sordes; sloughs form on different parts, and in extreme cases the toes have mortified. During the third week the patient's chance of recovery improves; in which case the more formidable symptoms begin gradually to diminish and abate. He begins once more to take an interest in what is going on around him, the temperature of his skin becomes more natural, the tongue moist and cleaner, and the frequency of the pulse much less. Typhus fever sometimes becomes complicated with inflammation of the brain, congestion of the lungs, or disease of the heart.

Treatment.—The treatment of this disease, hygienic, medical and preventive, corresponds almost exactly with that of typhoid fever. Fresh air, nourishing food, frequent change of position, with stimulants in case of prostration, and occasional aperients to relieve the constipation, instead of astringents to check the diarrhœa, as in typhoid, constitute the main part of the treatment. The delirium, and the restlessness, may be controlled in the same manner as in typhoid. The nurse in both these classes of continued fever must be on the look-out for bed-sores, and also see that the bladder is regularly evacuated. Convalescence is likely to be protracted. (See FEVER, BROMO-CHLORALUM, DISINFECTANTS, TYPHOID FEVER, BED-SORES, CONVALESCENCE, ETC.)

U.

ULCERATED SORE THROAT. (See SORE THROAT.)

ULCERS AND ULCERATION, *ul'-surz* [Lat. *ulcus*], is an open sore occurring in some of the soft parts of the body, either opening to the surface or to some internal cavity, and attended with a secretion of pus or some kind of discharge. Ulcers may arise from a variety of causes, as from wounds, specific irritation of the absorbents, from cancer, scurvy, scrofulous virus, etc. Wounds in the flesh, if at all deep, are very likely to pass into ulcers; and persons in whom, from any cause, the circulation has become sluggish, are more liable to ulcerations, and these of an unhealthy kind, than others. In simple ulcer, almost all that requires to be done is to keep the surface clean by putting on a little dry lint, if there be much discharge, and if not, a dressing of simple ointment. Where the part or the constitution is too weak to carry on the healthy action, general as well as local treatment is required; and the system has to be strengthened by nutritious diet, tonics, etc. In indolent ulcers, the applications require to be principally of a stimulating nature, as basilicon ointment, and occasional sprinkling with red oxide of mercury.

The great requisite in the treatment of ulcers of the lower extremity is rest, and rest in bed, or at least in the horizontal posture, so that the circulation of the affected limb may become properly balanced. It is often surprising how quickly, under this proceeding alone, and without other treatment, the swelling around an ulcer subsides, and the sore itself alters to a more healthy character.

There are cases of ulceration which require all the skill and patience which a medical man can bring to bear upon their treatment, and where an ulcer is continued, and appears to extend, it should always be placed under proper medical superintendence. (See PLASTERS, DRESSING, SORE THROAT, SORE MOUTH.)

ULMUS FULVA, *ul'-mus ful'-va*, or slippery elm, sometimes known as red elm, a tree belonging to the Nat. order *Ulmaceæ*. The inner bark is the part used medicinally. Elm bark is nutritive, expectorant, diuretic, demulcent and emollient, and in the shape of a mucilaginous drink is used in inflammations of the lungs, bowels, stomach, bladder or kidneys, as well as in diarrhœa, dysentery, coughs, pleurisy, strangury, and sore throat. The elm poultice is found a useful application to wounds, burns, scalds,

bruises and ulcers. The infusion is the form in which it is generally taken, and it may be drunk without regard to dose. (See INFUSION.)

UMBRELLA-TREE. (See MAGNOLIA.)

UNCONSCIOUSNESS. (See COMA, FAINTING, APOPLEXY, INTOXICATION, CONCUSSION, CONCUSSION OF THE BRAIN, SHOCK, ETC.)

UNDER-CLOTHING. (See CLOTHING, FLANNEL.)

UNICORN ROOT. (See HELONIAS DIOICA.)

UREA. (See URINE.)

URETER, *yu'-re-ter* [*Gr. ouron*, urine]. The tube which conveys the urine from the kidney into the bladder. (See KIDNEY, BLADDER.)

URETHRA, *yu-re'-thra*, is the passage for the urine from the bladder. (See BLADDER.) This passage is liable to be affected in various ways, especially in males; sometimes it is injured by violence, at others, small stones, or calculi, are apt to be impacted in it, and cause much suffering. (See URINE.) The most frequent affection, however, of the urethra, is stricture, or diminution of its size. This painful disorder in males generally takes its origin from diseases contracted in the irregularities of early life, especially, but may continue to afflict—or punish—even in old age. Stricture is of course of every degree, but sometimes proceeds so far as to occasion complete impediment to the discharge of urine, causing much distress and suffering, and requiring the instrumental interference of the surgeon. (See CATHETER.) If there is any necessary delay in procuring assistance, the measures recommended in article BLADDER, DISEASES OF THE, for *stoppage of urine*, will give relief in the meanwhile. In this disease, as well as in others which affect the urinary organs, it is again repeated, avoid the quacks. (See BLADDER, DISEASES OF THE.)

URIC ACID, *yu'-rik*, occurs in small quantities in human urine, to the extent of rather less than one per cent. of the solid matter contained in it. It is met with in much greater abundance in the excrement of birds and reptiles. When excess of uric acid is secreted in the system, it deposits hard crystalline grains in the bladder, which, if retained, gradually form concretionary calculi, and grow into the disease known as gravel or stone. (See CALCULUS, URINE.) In gouty patients, uric acid accumulates round the joints, forming white friable concretions known improperly as chalk-stones. (See GOUT.)

URINE, *yu'-rin* [*Lat. urina*], a highly complex fluid, secreted from the blood by the kidneys. In a healthy person, when recently voided, it is a clear limpid fluid, of a pale yellow or amber color, with a peculiar faint aromatic odor, which becomes pungent and ammoniacal when decomposition takes place. Often, however, as it cools, it becomes opaque and turbid, from the deposition of part of its constituents previously

held in solution; and this may be consistent with health. The quantity secreted in twenty-four hours depends upon the amount of fluid drunk and the quantity secreted by the skin; but generally it is about from thirty to forty fluid ounces. In 1,000 parts of ordinary urine there are 933 parts of water and 67 parts of solid matter.

UREA.—The principal and most characteristic ingredient of the urine is its urea, a body which acts as a base to or combines with acids; it is the retention of this compound in the blood which causes the symptoms of narcotic poisoning when the urinary secretion is suppressed.

URIC ACID.—Next in importance to the urea of the urine is its peculiar acid, generally known as uric or lithic acid. (See the article URIC ACID.) Perhaps the most common disorder to which the urine is liable, is excess of this acid; that is, in such excess, that instead of remaining dissolved, as in healthy urine, it becomes *precipitated*; in other words, there is so much of it that the urine cannot hold it dissolved. Thus, uric acid may exist uncombined, in which case it is deposited in the form of crystalline sand, of a yellow or red hue; very commonly, however, it exists in combination with ammonia, as a *urate of ammonia*; in which case it does not crystallize, but takes the form of a cloudy precipitate. This urate of ammonia forms the fawn-colored sediment, with which most are familiar, as a consequence of a chill, or common cold; it also assumes a pink, sometimes a deep red or purple hue, especially in affections of the liver. Urate of ammonia is extremely soluble in warm water or urine, and much less so in cold; so that, although when the urine is passed, it may contain it abundantly, the secretion is perfectly transparent, and it is only as it cools, and can no longer hold the urate in solution, that the latter becomes visible. The principal causes of excess of uric acid, or red or pink gravel, are malt liquors, when hard or old, suppressed perspiration, disorder of the digestive organs, and extra fatigue; or it may exist in excess in the blood; such is the case in gout. (See GOUT.)

The white sand or gravel is by no means so common as the red, and is usually connected with an alkaline condition of the urine; it, and indeed the white sediments generally, are more usually met with in the aged, and in states of debility.

When red, or pink, or fawn-colored gravel appears to be permanent, and to be connected with derangement of the digestive organs, the symptoms should not be neglected. If food has been taken at all in excess, it should be reduced, and the allowance of animal food especially moderated, malt liquor of every kind being sedulously avoided. If stimulants are necessary, a little sound sherry, or whiskey with water, are the best. Exercise should be taken freely, but not to exhaust; the skin

should be well cared for by frequent ablution. As regards medicine, the alkalis at once naturally suggest themselves as remedies, and most valuable they are. (See POTASH, SODA, ETC.) They quickly cause the acid to disappear, and were the disappearance of the acid all that is required, they alone might suffice; but the cause of the gravel, especially of the pink variety, is generally some derangement of the digestive processes, which must be rectified, if permanent amendment is desired. On this account, quite the safest plan is to consult a medical man on the subject, but if this is not done, along with the alkalis, some one of the tonic bitters should be combined; in fact, the digestive organs should be attended to as recommended in article DYSPEPSIA.

One caution is here requisite. Persons who have been the subject of red gravel are very apt to continue too long the use of alkaline remedies, and thus seriously to injure the constitution and the digestive powers, and in the end to induce a permanent *alkaline* condition of the urine, which is a more serious and intractable malady than the opposite *acid* state. The presence of white gravel is often so indicative of serious disease, that as soon as its presence is suspected, a medical man ought to be consulted. Whatever the form of the gravel, the skin and the digestive organs require especial attention. It is always desirable to keep the flow of urine free, and for this purpose sweet nitre, or infusion of broom or dandelion, are well adapted. Many find gin, used in moderation, of much service. When, however, the symptoms of gravel are constant, a medical man ought to be consulted, for it is not solely the immediate inconvenience which is to be obviated, but the liability of the gravel, whatever its nature, to accumulate, either in the kidney or bladder, in which case the result is either a most painful attack, a fit of the gravel, or the formation of stone.

A fit of the gravel is caused by a small gravelly concretion, or stone, passing either from the kidney down the ureter into the bladder, or through the passage—the urethra—from the bladder; in either case giving rise to intense suffering. (See CALCULUS.)

Stone, that is, a concretion of gravel so large that it cannot pass by the natural outlets, may form either in the cavity of the kidney, or in that of the bladder. This affection is more common either before puberty or after middle age. (See CALCULUS.)

BLOODY URINE, ETC.—Blood may occur in the urine in small quantity, giving the fluid merely a dark smoky tinge, or it may be discharged in large quantity as nearly pure blood. In some cases, matter and thick glairy mucus are discharged with the urine. In pregnancy, occasionally, a thin creamy-like scum forms on the urine, if it be allowed to stand for a day or two. Deviations from the healthy character of the urine are important,

first, a indicative of deranged states of the system; and, second, from their own local effects. Some individuals are much more liable to have the urine disordered than others, but in none can the condition be permitted to continue without risk, nor ought it to be without the cause being investigated by a physician.

ALBUMEN in the urine has already been referred to in the article BRIGHT'S DISEASE.

STOPPAGE OF THE URINE, and strangury, are sufficiently entered into under article BLADDER, DISEASES OF THE; to which the reader is referred.

INCONTINENCE OF URINE is treated of in the articles BLADDER, DISEASES OF THE; and BED-WETTING.

DRIBBLING OF URINE, either in the aged or in those confined to bed by some continued and exhausting disease, is a not an unfrequent occurrence, which occasions much discomfort both to the patient and others, in consequence of the offensive ammoniacal odor. This is best counteracted by bags filled with peat charcoal, when it can be procured, placed under the patient, or by bags of bran slightly moistened with diluted sulphuric acid. (See SULPHURIC ACID.) In some cases, a large coarse sponge may be used to absorb the urine. In such cases, it is expedient to have two sponges, so that one may be cleaned and dried whilst the other is in use. (See ISCHURIA.)

When permanent increase or diminution of the quantity of urine occurs without being accounted for, and especially if symptoms of constitutional disorder or debility, or of dropsy, show themselves, a medical man should at once be consulted.

UTERUS, *yu'-ter-us*. The womb. (See WOMB.)

UVA URSI, *yu'-va ur'-si*. The leaves of the *Arctostaphylos*, or *Arbutus Uva Ursi*, a plant belonging to the Nat. order *Ericaceæ*. It is a native of both Europe, Asia and North America, and is known by the common names of trailing arbutus, wild cranberry, and bearberry. The leaves are astringent and diuretic, and have been used with advantage in the whites, chronic gonorrhœa and gleet, profuse menstruation, and in irritable states of the bladder and kidneys, chronic diarrhœa, dysentery, diabetes. Dose: of the infusion, 1 to 2 fluid ounces; of the fluid extract, $\frac{1}{3}$ to 1 teaspoonful; of the powdered leaves, 10 to 20 grains, three or four times a day. (See INFUSION.)

UVULA, *yu'-vu-la* [Lat. *uva*, a grape], is a small fleshy protuberance which hangs at the middle of the posterior margin of the soft palate. In the case of sore throat, it frequently becomes enlarged and inflamed, and is to be treated by the application of stimulants and astringents in gargles. When other means fail, it may require to be amputated, an operation which is neither painful nor dangerous.

V.

VACCINATION, *vak-se-na'-shun* [Lat. *vacca*, a cow], is the artificial production of a disease known as the cow-pox, by inserting some of the matter of the disease under the skin. The cow-pox was so called from being communicated to the human subject from certain specific sores on the teats and udders of cows. Milkers were particularly liable to this disease, and among the great dairy farms in Gloucestershire, England, there was a popular belief that no person who had had the cow-pox could afterwards take the small-pox. This having excited the attention of Dr. Jenner, he satisfied himself of the truth of it by inoculating with small-pox matter several individuals who had had the cow-pox; and at length conceived the happy idea of propagating the cow-pox from one individual to another, and so preventing in all cases the dangerous distemper of small-pox. The great advantage of vaccination over inoculation is that it only produces a slight disorder, which is attended with no risk, and not communicable except by direct engrafting. The operation is usually performed by making an oblique puncture through the epidermis, and introducing a portion of the virus on the point of the lancet or needle. If the operation has been successful, a small inflamed spot is discernible about the third or fourth day. This increases in size, becomes hard and elevated, and about the sixth day a small quantity of fluid may be distinguished in the centre. About the eighth day, when the pustule is fully formed, the constitutional effects begin to appear—headache, shivering, loss of appetite, etc., which gradually subside in one or two days. Afterwards, the fluid dries up, and a dark-brown scab forms, which remains for about a fortnight, and on disappearing leaves a depression. From the operation being imperfectly performed, or from other causes not well understood, vaccination does not in all cases afford absolute immunity from the disease; but in those cases in which it does occur, it is almost always in a very mitigated form.

The best period of life for the performance of vaccination is infancy, between the third and fifth months, before the constitution becomes disturbed by the process of teething; it may, however, be performed at any time, from immediately after birth, should circumstances, such as exposure to the contagion of small-pox, render it advisable, and of course at any period of after life. A child ought to be free from illness or disorder at the time of vaccination; any tendency to fever, to diarrhoea, etc.,

or any eruption, should be removed before the process is undergone. It is always preferable to vaccinate from the fresh arm, if possible; when this cannot be done, vaccine virus or lymph is used, which has been preserved for the purpose.

The part of the body on which vaccination is usually performed is the arm, about half-way between the shoulder and elbow; a point not of very great importance in males, but to be attended to in females, who may wear low dresses, or short sleeves, and who will not thank the doctor for a scar upon a visible part.

The management during the progress of the vaccine disease is very simple, the principal being the protection of the vesicles from injury, either by rubbing or by the dress. A piece of soft linen should be placed upon them on the fifth day. If the inflammation of the arm is severe, as sometimes happens, a cold poultice of bread and water should be applied. A little goulard water will allay the after-irritation, if troublesome. A dose of some simple aperient, castor-oil or senna, should be given on the tenth or eleventh day, and repeated once or twice afterwards. Care should be taken that the scabs are not forcibly detached, otherwise a sore, sometimes difficult to heal, may be the consequence; in which case it may be dressed with cold cream or simple water dressing (see DRESSING), or may require a weak astringent lotion, such as 2 grains of the sulphate of zinc to the ounce of water. Occasionally, an eruption of vaccine vesicles comes out all over the body; it is not a circumstance of importance, and makes no difference in the treatment.

Re-vaccination.—The question of re-vaccination is much mooted. If the process has been properly passed through in early life there can be no possible necessity for its repetition before puberty; but after that period, during which the constitution undergoes considerable change, it is an expedient precautionary measure which ought to be resorted to. The process of a second vaccination is very different from that of a first, being irregular in every way, sometimes causing the slightest degree of irritation, at other times giving rise to rapid, almost erysipelatous inflammation of the arm. When it takes effect, it usually occasions slight feverish symptoms, loss of appetite, and headache for a day or two. A dose or two of aperient medicine should be taken when these symptoms are passing away. The virus of a second vaccination is quite inefficient, and should never be taken. (See SMALL-POX.)

VACCINIUM, *vak-sin'-e-um*, or bilberry, a plant belonging to the Nat. order *Ericaceae*. It is common to the Northern States. The fruit of this and other members of the whortleberry family, are diuretic and astringent, and eaten alone, or with milk and sugar, are useful in scurvy, dysentery, and derangements of the urinary organs.

VAGINA, *va-jî'-nâ* [Lat. for a sheath], the name given to the canal leading to the exterior orifice of the womb. (See WOMB.)

VALERIAN. (See VALERIANA OFFICINALIS.)

VALERIANA OFFICINALIS, *va-le-re-a'-nâ of-fis-e-nâ'-lis*, or valerian, a perennial plant belonging to the Nat. order *Valerianaceæ*. It is a native of both Europe and the United States. The root is the part used in medicine. Valerian is tonic in its action, antispasmodic and calmative; subdues unusual and convulsive excitement of the system, without exerting narcotic effects. Wherever there is irregular nervous action, if unconnected with inflammation or excited condition of the system, valerian is useful in subduing it. It has been used in ague in combination with cinchona; as also it is administered in the restlessness and irritability occurring in hysterical constitutions, in the morbid vigilance of fevers, in epilepsy, brow ague, hysteria and hypochondriasis. In large doses it produces a sense of heaviness, and dull pain in the head, with other effects indicating nervous disturbance. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the solid extract, 3 to 10 grains; of the tincture, $\frac{1}{2}$ to $1\frac{1}{2}$ teaspoonfuls; of the infusion, 2 to 4 fluid ounces (see INFUSION); of the compound tincture, 1 to 2 teaspoonfuls, three or four times a day.

VALVE, *valv* [Lat. *valvæ*, a folding door]. 1. In Anatomy, a membranous elongation in canals, which prevents the reflux of fluids; applied to the valve of the colon, and to thin and transparent membranes situated within arteries, veins, and absorbents. 2. In Botany, the divisions of the fruit. (See HEART, ARTERY, VEINS, CIRCULATION OF THE BLOOD, ETC.)

VALVULAR DISEASE OF THE HEART. (See HEART, DISEASES OF THE.)

VANILLA. (See VANILLA AROMATICA.)

VANILLA AROMATICA, *va-nîl'-lâ ar-o-mat'-e-kâ*, or vanilla, a climbing shrub belonging to the Nat. order *Vanillaceæ*. It grows in Mexico and the tropical parts of South America. The fruits or pods, which are the parts used, are aromatic and stimulant, and in the form of infusion, are useful in hysteria, rheumatism and low fevers. It is much used in perfumery, and to flavor medicines and confectionery. Dose: of the powder, from 8 to 10 grains; of the infusion, $\frac{1}{2}$ a fluid ounce, three or four times a day. (See INFUSION.)

VARICOSE VEINS. (See VEINS.)

VARIOLA, OR SMALL-POX. (See SMALL-POX.)

VARIOLOID, *var'-e-o-loid*, or *va'-re-o-loid*, the small-pox modified by previous inoculation or vaccination. (See SMALL-POX.)

VASELINE, OR PETROLEUM JELLY, *vas'-e-lin*, a concentrated

essence of petroleum; is very useful as a local application in burns, frost bites, wounds, sprains, sun-burn, chilblains, rheumatism, skin diseases, etc.; and is recommended to be taken internally in croup, colds, coughs, sore throat, etc. Vaseline and other preparations of petroleum are said to be efficacious in the prevention and cure of baldness; vaseline, not being an advertised nostrum, and being quite odorless, is preferable to any. By the addition of perfume it makes an excellent pomade. Vaseline is fast taking the place of lard in the preparation of ointments, cerates, etc.

VEAL, *veal* [Lat. *vitellus*], is not so digestible as the flesh of the adult animal, but it is rendered more injurious to persons of weak digestion by the conventional methods of cooking with melted butter, etc. The objection to veal, as invalid diet, does not extend to the broth made from it, which is often peculiarly adapted to the requirements of convalescence and illness, from the amount of gelatine it contains. The knuckle of veal, stewed so as to be very tender, affords food which agrees remarkably well with weak, and especially with irritable stomachs. (See FOOD.)

VEGETABLES. (See FOOD, and articles on individual vegetables.)

VEINS, *vānz* [Lat. *vena*, a vein; Fr. *veine*], are those organs of circulation by which the blood is taken up from the extremities of the arteries and conveyed to the heart. (See CIRCULATION OF THE BLOOD.)

Veins are liable to inflammation from wounds, from inflammation extending from the adjacent parts, etc. This is a most dangerous affection, and frequently resists the best directed efforts of medical skill. The affected vessel is painful, feels hard, and the skin covering it, and the parts around, are red and inflamed; there is much constitutional fever, which tends quickly to a low or typhoid form. The most that could be done by an unprofessional person in such a case would be to use repeated fomentations to the inflamed parts, and to administer from $\frac{1}{4}$ to $\frac{1}{2}$ -grain doses of opium, with 2-grain doses of calomel, every three, four, or five hours, according to circumstances, until the arrival of a medical man.

A “*varicose*” condition of the veins is chiefly met with on the lower extremities. The affection consists, essentially, in the veins becoming elongated, so as to permit of their assuming a tortuous knotted condition, while they are at the same time enlarged. The most frequent causes of the varicose veins are such as cause impediment to the upward flow of the blood through the large veins of the abdomen. In this way, pregnancy, if frequent, is a most common exciter of the condition, habitual costiveness, diseases of the liver, tumors of any kind within the abdomen, act in a similar manner. The truss worn on account of rupture,

or garters too tightly tied, likewise excite the varicose condition, which is usually more common in persons whose occupations require much standing, especially if they are of tall stature. The causes of it, which have been just alluded to, naturally suggest the best means of alleviation and cure, that is, the removal as far as possible of all interruptions to the upward flow of the blood, and the horizontal posture of the body or limb. As these conditions, however, cannot in all probability be perfectly carried out, it is desirable that in all cases of varix, the veins and limbs generally, should be supported by some one of the forms of elastic stocking; these can now be obtained at so moderate a price, that none need be without their valuable aid. Some individuals cannot, however, wear an elastic stocking of any kind; for such cases, an elastic tape fixed to the foot by a stirrup, and wound spirally round the limb, has been successfully employed. Spaces of about three inches being left between the spirals, each time the band crosses the vein, it acts like a valve. (See HEART, ARTERY, CIRCULATION OF THE BLOOD, BLEEDING, HEMORRHAGE, ETC.)

VENEREAL DISEASE, OR SYPHILIS. (See SYPHILIS.)

VENESECTON, OR BLEEDING. (See BLEEDING, OR BLOOD-LETTING.)

VENISON, *ven'-zn* or *ven'-e-zn* [Fr. *venaison*, from Lat. *venatio*, a hunting; *venor*, to hunt]. The flesh of the deer, like that of other wild or hunted animals, is particularly digestible, and is probably rendered more so by the custom of long keeping. (See FOOD.)

VENTILATION, *ven-te-la'-shun* [from Lat. *ventilo*, *ventilatus*, to fan, to brandish in the air; *ventus*, wind], is the renewal of the air contained in enclosed spaces. The object of the operation is to provide in the first place for the escape or withdrawal of air which has become deteriorated from any cause, such as animal respiration: and in the second, to supply the place of the deteriorated withdrawn air, by that which is fresh and pure. Under the head of ventilation, moreover, the heating and cooling of air may, perhaps, be included. Under such articles as AIR, AERATION, BLOOD, LUNGS, RESPIRATION, CIRCULATION OF THE BLOOD, ETC., the requirements of the animal constitution, which render a regular supply of pure air necessary for health, have been sufficiently entered into, and need not be repeated: and under the articles BED-ROOM, HOUSES, SICK-ROOM, CHIMNEY, AIR, ETC., much information on the subject of ventilation itself will be found—to these subjects the reader is referred. (See also OXYGEN, CARBONIC ACID GAS, STOVES, CHOKE-DAMP, MALARIA, DISINFECTANTS, ETC.)

The entire surface of the earth is subject to a vast system of ventilation, effected by means of the currents of air, or winds, which are con-

tinually passing over it, especially by those which, like the "trade," and other winds, blow continually in one direction for months together.

It is one of the saddest reproaches of the age in which we live that, as yet, no system of ventilation has been proposed that has not been found in some respects inefficient, and many thousands of dollars have been spent in attempting to ventilate public buildings without effect. The great desideratum, especially for hospitals and for manufactories where the artisans are often overheated (see AIR), is to get efficient and proper ventilation without draughts. (See HEALTH, LONGEVITY, ETC.)

VENTRICLE, *ven'-tre-khl* [Lat. *ventriculus*, the belly, the stomach, a ventricle of the heart], a term applied to two cavities of the heart. (See HEART, CIRCULATION OF THE BLOOD.)

VERATRIA, OR VERATRINE, *ve-ra'-tre-a*. An alkaloid prepared from the veratrum album and other plants. It is a powerful poison, and is rarely used internally, even by physicians. Its principal use is as an external application, in the form of ointment, in neuralgia, hemicrania, and some diseases of the eye. Great caution is necessary in its application. (See ALKALOIDS, POISONS AND THEIR ANTIDOTES.)

VERATRUM VIRIDE, *ve-ra'-trum vir'-e-de*, or American hellebore, sometimes known as swamp hellebore, or Indian poke, is a perennial plant belonging to the Nat. order *Melanthaceæ*. It is a native of the United States. The root is the part used in medicine. It is an acrid expectorant, diaphoretic and emetic; it is chiefly, however, as an arterial sedative that it has acquired its reputation. Under its use, in a short time the pulse can be reduced from seventy-five or eighty per minute to thirty-five or forty. It contains a considerable quantity of the alkaloid, *veratria*, which is a powerful poison. On account of its very active and powerful properties, it is best used only under the direction of a physician. It is employed chiefly as a sedative to reduce the heart's action in acute inflammation. Dose: of the fluid extract, 2 to 10 drops; of the tincture, 2 to 10 drops; of the infusion, 2 to 4 teaspoonfuls, every two or three hours, until the pulse is sufficiently reduced. (See INFUSION, POISONS AND THEIR ANTIDOTES.)

VERBASCUM THAPSUS, *ver-bas'-kum thap'-sus*, or mullein. A common biennial plant belonging to the Nat. order *Scrophulariaceæ*. The leaves and flowers are the parts used; they are demulcent, diuretic, anodyne and antispasmodic, and in the shape of infusion are useful in coughs, catarrh, diarrhœa, dysentery and piles. The leaves and the pith of the stalk form an excellent poultice to white swellings, and a good fomentation in quinsy and the mumps. The seeds are said to be narcotic. The infusion of the leaves and flowers may be drunk freely. (See INFUSION.)

VERBENA HASTATA, *ver-be'-nā has-ta'-tā*, or vervain. A native American plant, the roots and tops of which are used in medicine. They are tonic, emetic, diaphoretic and expectorant, and are used in catarrh, intermittent fever, obstructed menstruation and scrofula. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 2 to 4 fluid ounces, three or four times a day. (See INFUSION.)

VERDIGRIS, *ver'-de-grees*. Sub-acetate of copper. (See COPPER.)

VERMIFUGE, *ver'-me-fūje* [Lat. *vermis*, a worm, and *fugo*, to cause to flee]. A medicine that expels worms from the body, or one that prevents their development. (See WORMS, ANTHELMINTICS.)

VERNONIA FASCICULATA, *ver-no'-ne-ā fa-sik-yu-la'-tā*, or ironweed, a perennial plant belonging to the Nat. order *Asteraceæ*. It is a very common plant in the Western States, growing in the woods and prairies, and along streams. The root, which is the part used, is tonic and alterative. It is used in the form of decoction in the different forms of menstrual irregularities and in scrofula. It has been useful also in intermittent fever, or ague. The powdered root and leaves in the form of a poultice, is an excellent application to tumors. Dose: of the decoction, 1 or 2 fluid ounces; of the tincture, 1 or 2 teaspoonfuls, three or four times a day. (See DECOCTION.)

VERTEBRÆ, *ver'-te-bre* [Lat. from *verto*, to turn], the bones which compose the spine or backbone. (See SPINE.)

VERTIGO. (See GIDDINESS.)

VERVAIN. (See VERBENA HASTATA.)

VESICANT, *ves'-e-kant*, an application for blistering. (See BLISTER, BLISTERS.)

VESICATION, *ves-e-ka'-shun*, the act of blistering. (See BLISTER, BLISTERS.)

VESICLE, *ves'-e-kl* [Lat. *vesicula*, diminutive of *vesica*, a bladder, a blister], a little bladder or blister filled with a watery fluid.

VIBURNUM OPULUS, *vi-bur'-num op'-u-lus*, cramp bark, or high cranberry, is a handsome shrub growing in low, rich lands in the Northern States and Canada. It is a powerful antispasmodic, from which property it has received its name, cramp bark. It is used in spasms, cramp, asthma, and by females subject to convulsions during pregnancy, or at childbirth. It is said to prevent these attacks entirely if used daily for the last two or three months of gestation. Dose: of the fluid extract, 1 to 2 teaspoonfuls; of the infusion, 2 to 4 fluid ounces, three times a day.

VIBURNUM PRUNIFOLIUM, *vi-bur'-num pru-ne-fo'-le-um*, black haw, or sloe, is an American tree belonging to the Nat. order *Caprifoliaceæ*. The bark of the root is the part used; it yields a resinous principle called *viburnin*. Black haw is tonic, astringent, diuretic and

alterative. It is useful in chronic diarrhœa and dysentery. It exerts a tonic influence on the womb, and is highly recommended as a preventative in cases of threatened abortion or habitual miscarriage. It will also promptly relieve severe after-pains. Dose: of the infusion (see INFUSION), $\frac{1}{2}$ a fluid ounce, three or four times a day; of the tincture, a teaspoonful every three or four hours; of the powder, 30 to 60 grains.

VIGOROUS OLD AGE. (See LONGEVITY, HEALTH.)

VINE. (See VITIS.)

VINEGAR, ACETIC ACID, ACETUM, *vin'-e-gar* [Fr. *vinaigre*]. Acetic acid is the volatile acid principle, which, diluted with water, constitutes vinegar. (See ACETIC ACID.) Vinegar is a solution of acetic acid in water; it is of variable strength, and contains coloring matter, and usually, also, spirituous and etherial principles. It is prepared from wine, malt, sugar, cider, etc. It is produced by the acetous fermentation, which is carried on under a temperature approaching 80° Fahr.

The wine vinegars are made chiefly from the lighter wines by a careful process of fermentation. The domestic manufacture of vinegar is so simple, that those who wish it can easily render themselves independent of the manufacturer, and, indeed, many housekeepers do manufacture their own, thus avoiding the risk of obtaining an adulterated article. In moderate proportions, vinegar assists digestion, taken immoderately it is very injurious, destroying the digestive powers, and even inducing actual disease of the stomach. In the subject ACETIC ACID, the action of vinegar upon the system is discussed from a medicinal as well as a dietetic point of view. (See ACETIC ACID, CONDIMENTS, HONEY AND VINEGAR SYRUP, ETC.)

VIPERS, BITES OF. (See BITES AND STINGS.)

VIRGIN BOWER. (See CLEMATIS VIRGINIANA.)

VIRGINIA CREEPER. (See AMPELOPSIS.)

VIRGINIAN SNAKE-ROOT. (See ARISTOLOCHIA.)

VISION, *vizh'-un* [from Lat. *video*, *visus*, to see], is the power of taking cognizance of the size, color, position, etc., of objects, external to the body, by means of rays of light, which are received upon a nervous expansion, capable of conveying the impressions received by it to the sentient being. In the lowest tribes of animals, the organs of vision, or eyes, are of comparatively simple construction, but the same organs in man are most exquisitely elaborate. Under article EYE, this structure has already been entered into as far as space permitted. (See EYE.)

Glasses, spectacles, short-sight.—In many eyes, the cornea projects too much, is too convex; the consequence is, that the rays which pass through it from external objects placed at the ordinary distance from the eye, are too rapidly collected or brought together, so that, instead of

forming the distinct or focal image exactly in the retina, they form it a little in front, and therefore confusedly. It is usual to remedy the defect by the use of glasses, which, being made concave, the reverse of the too convex cornea, counteract the effect of the latter, by somewhat scattering the rays of light before they reach the eye. *In old age*, generally, the condition of the eye is exactly the reverse of the above, the cornea becomes flattened, so that instead of collecting the rays too quickly, it does not collect them quickly enough, consequently, the distinct image they form, or ought to form, will fall rather behind the retina, and the image in the retina will be indistinct. To remedy this defect, convex glasses or lenses are used, in the form of spectacles, etc., as they assist the cornea to collect the rays more quickly than in its flattened condition it is capable of doing. Such are the nature, causes, and rational modes of correcting some of the most common derangements to which vision is liable. (See AMAUROSIS, BLINDNESS, COLOR BLINDNESS, EYE; EYE, DISEASES OF THE; OPHTHALMIA, ETC.)

VITIS, *vi'-tis*, the vine, a genus of the Nat. order *Vitaceæ*. *V. vinifera* is the plant commonly known as the grape vine. The varieties which have been developed by cultivation are very numerous, more than 300 being distinguished. The leaf of the vine is astringent, and has been used in diarrhœa. (See WINE.)

VITRIOL. (See SULPHURIC ACID, COPPERAS.)

VOICE, *vois* [Lat. *vox*], or vocal sound,—produced in the larynx,—is the endowment of animals generally, and differs from speech, possessed by man alone; the latter, physically speaking, depending upon the formation and action of the parts about the mouth. (See SPEECH, LARYNX, LUNGS, CRY OF CHILDREN, APHONIA, ETC.)

VOMITING, *vom'-it-ing*, is the action of discharging the contents of the stomach through the gullet and mouth by muscular effort, or rather by a combination of muscular efforts. Formerly, it was imagined that vomiting depended upon convulsive action of the stomach alone; after that it was thought that the stomach was passive in the act, and that the pressure of the muscles of the belly, thrown into violent action, was the sole cause; it is now well ascertained that both these agencies are called into play when vomiting occurs; that the stomach does, by the action of its muscular fibres, assist in the expulsion of its contents, but that its efforts are greatly aided by the muscles of the abdomen, including the diaphragm.

For *causes and treatment of vomiting*, see NAUSEA. The reader is also referred to SEA-SICKNESS, EMETICS, POISONS AND THEIR ANTIDOTES, CREASOTE, ICE, EFFERVESCENCE.

VOMITING OF BLOOD. (See HEMORRHAGE.)

W.

WAFER ASH. (See PTELEA TRIFOLIATA.)

WAHOO. (See EUONYMUS ATROPURPUREUS.)

WAKEFULNESS. (See SLEEP.)

WALKING. (See EXERCISE.)

WALKING IN SLEEP. (See SLEEP.)

WALLS AND WALL PAPERS, *wawlz*. The principal object, on the score of health, to be regarded in the external walls of dwellings is, that they shall be sufficiently thick for warmth, that they shall be hollow, and that they shall not be of such porous material as will too readily absorb or give out moisture. Some kinds of stone and badly-made bricks do this, and render dwellings unwholesome. The defect of outer-walls, either as regards material or thickness, may be considerably ameliorated by lathing and plastering within. In covering the inner walls of houses either with paint or paper, too little regard, perhaps, has hitherto been paid to the effect of the materials which are used on health. In other parts of this work, it is stated that colors containing lead, and wall papers colored with arsenical green, have been found to affect injuriously the occupants of rooms, on the walls of which they have been used. (See LEAD, ARSENIC IN WALL PAPER.) Moreover, as light exerts so strong an influence upon health, it is not unlikely that wall colors, especially in the variation from light to dark, may be found to do the same.

Wall papers are liable to another objection, namely, that connected with the size, by means of which they are attached. Many a fever has been caused by the horrible nuisance of corrupt size used in paper-hanging in bed-rooms. The nausea which the sleeper is aware of on waking in the morning, in such a case, should be a warning needing no repetition. Down should come the whole paper, at any cost or inconvenience; for it is an evil which allows of no tampering. (See HOUSES, ARSENIC IN WALL PAPER, SICK-ROOM, DAMP, ETC.)

WALNUT, WHITE. (See JUGLANS CINEREA.)

WARM BATH. (See BATHS AND BATHING.)

WARMING HOUSES. (See HOUSES, SICK-ROOM, CHIMNEY, STOVES.)

WARTS, *wawrts* [Ang.-Sax. *weart*], are hard unsightly excrescences or tumors that form on the cuticle or outer skin, usually of the

hands or some other conspicuous place. They are of slow growth, small, insensible, and generally conical in form. When situated on the hands, they often disappear of themselves; when their removal is desired, strong acetic acid, applied every two or three days, is quite the best remedy; caustic, however, or tying, or cutting them off, are measures also resorted to. When a wart on the face, especially in those advanced in life, appears inclined to become ulcerated, or irritated, it ought to be shown to a medical man. It sometimes, though rarely, requires removal, from degenerating into cancer.

WASTING OF FLESH. (See ATROPHY, EMACIATION, TABES.)

WATER, *waw'-tur* [Ang.-Sax. *wæter*]. Chemically speaking, water consists of hydrogen and oxygen united in equal equivalents, by weight of eight parts of oxygen to one of hydrogen; or by measure, one part of oxygen to two of hydrogen. Absolutely pure water is only obtained by distillation (*aqua distillata*.) It is a colorless, transparent liquid, without either taste or smell. A cubic inch of it, at a temperature of 60°, weighs 252½ grains; reduced to a temperature of 32°, it becomes solid, and raised to a temperature of 212°, it passes into steam. On account of the remarkable solvent powers of water, it is, in its natural state, contaminated with more or less impurities. *Soft water* contains comparatively small quantities of impurities, and when used with soap forms a lather. *Hard water*, on the other hand, contains large quantities of calcareous and other salts, which through their presence curdle the soap and render the water unfit for many domestic purposes. *Rain* and *snow waters*, if collected in large vessels in the open field after the dust has become settled, are the purest of the natural waters. They are both sufficiently pure for medicinal purposes. *Spring water* is marked by the character of the strata through which it passes, being the most pure when it passes through sand or gravel. *River water*, being made up mostly of rains, has less saline matter than spring water, but it frequently is mixed with more or less insoluble vegetable and animal matters, which render it less transparent and more impure. *Well water*, unless brought from a great depth and from a well that is constantly used, is liable to be mixed with a great deal of impurity. On account of the great depth of artesian wells, the water from them is comparatively pure and wholesome. *Lake water* possesses no invariable qualities; the water from most of the large lakes of the United States and Canada is pure and wholesome. *Marsh water* contains much decomposed matter, is always unhealthy, and should never be used for medicinal purposes. For the description and uses of the so-called *mineral waters*, see article under that heading. For the medicinal uses of *water*, *ice*, *sea-water*, *mineral waters*, etc., see articles ABLUTION, BATHS AND BATHING, ICE, MINERAL WATERS, HEMORRHAGE, ETC.

For the uses of water as a drink, see DRINKS; and for *distilled water*, see AQUA.

WATER AVENS. (See GEUM RIVALE.)

WATER-BRASH, PYROSIS, *waw'-tur-brash*, is a disorder characterized by copious vomiting of clear fluid—either sourish or tasteless—from the stomach. It is a frequent accompaniment of chronic dyspepsia, and those who live much on innutritive vegetable food are peculiarly liable to it. Before the fluid is brought up, there is often pain, more or less severe, experienced at the pit of the stomach. Improved diet, and the treatment of dyspepsia generally, are the most suitable measures. The following can be highly recommended to those who suffer from this annoying affection:

Take of White bismuth.....Twelve grains.
Aromatic powder.....Five grains.—*Mix.*

The powder to be taken twice a day in a little milk. (See DYSPEPSIA, ACIDITY OF THE STOMACH, HEARTBURN.)

WATER CHICKWEED. (See CALLITRICHE VERNA.)

WATER-CLOSETS AND PRIVIES, *waw'-tur kloz'-ets*. The faulty regulation, insufficient supply, or even total want of these necessary appendages of every habitation, are the sources of some of the greatest nuisances of our large towns especially, are most fertile sources of disease in crowded localities, and have presented, and still present, great difficulties in the way of sanitary reformation. In country places, the difficulty of procuring a sufficient supply, and proper arrangement of the water requisite for a closet, render privies almost matters of necessity; this, under the circumstances, is matter of less consequence, provided these places are situated at a sufficient distance from the house, and are kept properly regulated and cleansed. It is desirable, from time to time, to throw into the cesspool of a privy some dry absorbent material, such as earth, lime, etc. These, and similar places, should never be cleansed out in warm weather; if they become offensive, chloride of lime in some form should be employed about the place, or thrown into the cesspool, until cool weather permits the removal of the nuisance. In towns and crowded places, privies should never be permitted, but efficient water-closets, with well-constructed drains (see DRAINAGE) substituted; and one should be attached to every house, both for the sake of cleanliness and of decency. (See EARTH-CLOSET, SANITARY SCIENCE.)

WATER-CRESSSES. (See CRESSSES.)

WATER-CURE. (See HYDROPATHY.)

WATER-DRESSING. (See DRESSING.)

WATER ERYNGO. (See ERYNGIUM AQUATICUM.)

WATERING-PLACES. (See HEALTH RESORTS, MINERAL WATERS, CLIMATE, ETC.)

WATER IN THE CHEST. (See DROPSY.)

WATER IN THE HEAD. (See HYDROCEPHALUS.)

WATER LILY. (See NYMPHÆA ODORATA.)

WATER ON THE BRAIN. (See HYDROCEPHALUS.)

WATER PEPPER. (See POLYGONUM PUNCTATUM.)

WATER PLANTAIN. (See ALISMA PLANTAGO.)

WATER STARWORT. (See CALLITRICHE VERNA.)

WAX. (See CERA.)

WAX IN THE EAR. (See CERUMEN, DEAFNESS.)

WEAKNESS. (See DEBILITY.)

WEAKNESS OF THE BLADDER. (See BLADDER, DISEASES OF THE.)

WEALTH. (See OCCUPATION.)

WEANING, *ween'-ing*. The weaning of infants must depend upon two considerations, the condition and health of the mother or nurse, and the age of the child. If the mother be in such a condition of health that she cannot nurse her infant, with benefit either to herself or it, weaning of course must take place at once; but in the generality of cases, the proper time is about the ninth or tenth month, when the first four teeth have appeared. Indeed, the development of the teeth may be taken as the signal that other food is required; if, therefore, their appearance is delayed, suckling may in most instances be prolonged, for the reason, that the late appearance of the teeth is frequently associated with delicacy of constitution, and then it is desirable for the child to be kept longer at the breast.

Previous to weaning, the child should be gradually accustomed to other food. It is desirable for weaning to take place in fine weather, when the infant can be carried a good deal out of doors. Should disorder of the bowels or other symptoms of illness arise, it must be managed as recommended under article CHILDREN, to which the reader is referred. (See also NURSE, MILK, DENTITION, TEETH, ETC.)

WEATHER. (See SEASONS, COLD, DAMP, HEAT, CLIMATE, BAROMETER, ETC.)

WEeping EYE, *weep'-ing*, is the flow of tears over the cheek, in consequence of the lachrymal sac and passage into the nose being obstructed. Relief can only be obtained by proper surgical interference. (See EYE, DISEASES OF THE.)

WEIGHTS AND MEASURES, *wates, mezh'-urz*. The weights and measures used in this country are those known commonly as apothecary's.

caries' weights, and apothecaries' measures. The following tables set the whole matter in a plain light :

APOTHECARIES' WEIGHT.

Pounds.		Ounces.		Drams.		Scruples.		Grains.
lb 1	=	12	=	96	=	288	=	5,760
		$\frac{1}{3}$ 1	=	8	=	24	=	480
				$\frac{1}{3}$ 1	=	3	=	60
						$\frac{1}{3}$ 1	=	gr. 20

APOTHECARIES' MEASURE.

Gallon.		Pints.		Fluid Ounces.		Fluid Drams.		Minims.
Cong. 1	=	8	=	128	=	1,024	=	61,440
		O 1	=	16	=	128	=	7,680
				$f\frac{1}{3}$ 1	=	8	=	480
						$f\frac{1}{3}$ 1	=	m. 60

In domestic practice small quantities of medicines are often estimated by *drops*, and the drop is set down as equal to the minim, or one-sixtieth part of a fluid dram. It is an uncertain method, and will not answer if much exactness is required. The size of the drop depends on the density of the liquid, its greater or lesser viscosity, and the shape of the vessel from which it is poured. Certain household vessels, of a capacity approaching to uniformity, are made use of for the administration of medicines. Such are :

The Tea-cup, estimated to contain.....	Four ounces.
Wine-glass, estimated to contain.....	Two ounces.
Tablespoon, estimated to contain.....	Half an ounce.
Teaspoon, estimated to contain.....	One dram.
Dessertspoon, estimated to contain.....	Two drams.

Graduated medicine glasses are now manufactured and can be procured of any respectable dealer, having the tablespoon, dessertspoon, and teaspoon marked thereon, containing exactly the $\frac{1}{2}$, the $\frac{1}{4}$, and the $\frac{1}{8}$ of the fluid ounce. For a description of the French system of weights and measures now coming into vogue in this country, see the article METRIC SYSTEM. (See DOSE, HOUSEHOLD MEDICINES, MEDICAL SIGNS.)

WEN, *wen* [Ang.-Sax. *wenn*], an encysted tumor, varying exceedingly in size and character, and commonly situated immediately under the skin, but occurring also in some of the internal viscera. It is comprised in a membrane called a cyst, and its contents sometimes resemble fat or suet; at other times it contains serum, or a thin foetid brown or black fluid. Frequently the cyst, especially when small, may be punctured, and its contents pressed out; but sometimes this gives rise to very severe inflammatory action. The other and safer mode of treatment is for the surgeon to dissect it out with the knife, wherever its position will admit of it.

WET-NURSE. (See NURSE, CHILD.)

WETTING THE BED. (See BED-WETTING; BLADDER, DISEASES OF THE.)

WHEAT. (See CEREALS, FLOUR, BREAD, FOOD, CRACKED WHEAT.)

WHISKEY, *hwis'-ke* [Gaelic *usquebaugh*, pronounced *wisky bay*, water of life], a spirit that is distilled from barley, wheat, rye, maize or Indian corn, potatoes, etc., and contains about fifty per cent. by weight of alcohol. Much of the whiskey consumed in this country is prepared artificially by reducing raw spirits with water, and then adding certain substances to impart the desired flavor. To avoid these adulterations, the purchaser should be careful to obtain it from none but the most respectable dealers. Whiskey and other ardent spirits should only be used as a medicine. The medicinal properties of whiskey are identical with those of brandy, for which it is largely substituted in medicine, and if pure, and of good age, is preferable to the grades of brandy usually met with in this country. (See BRANDY, ALCOHOL; STIMULANTS, ALCOHOLIC; WINE, ALE, PORTER, ETC.)

WHITE OAK. (See QUERCUS.)

WHITE POND LILY. (See NYMPHÆA ODORATA.)

WHITE POPLAR. (See POPULUS TREMULOIDES.)

WHITES, FLUOR ALBUS, OR LEUCORRHŒA, *hwites* [Gr. *leukos*, and *rheo*, to flow].

Symptoms.—The affection passing under these names, from which females suffer, is characterized by the discharge of a white milky fluid from the womb, dependent on irritation seated there. When present in a marked degree, the menstrual discharge is either scanty, and accompanied by much pain, or it is entirely suppressed. In certain cases the white discharge immediately succeeds the normal menstrual flow; in others it precedes it, and is checked by the occurrence of the latter.

Females suffering from the whites are often unhealthy in appearance, the complexion being sallow and often pale, with an expression of great languor. A peculiar uneasiness, often a kind of gnawing pain, is experienced in the lower part of the back, and the patient is unable to walk—sometimes is rendered unfit to maintain the erect posture. Appetite is lost, and the health generally is often much depressed.

Persons who are subject to rheumatism and gout are apt to be affected by this form of ailment: it often takes its rise after pregnancy or delivery, or is connected with some form or other of irregularity in the function of the parts. A careful inquiry into the history of each individual case is required, in order to determine the probable cause of its commencement, and for this reason if the disease does not yield to the simple treatment here enjoined, a physician should be at once consulted.

Treatment.—In the treatment of this affection, special care must be directed to the state of the general health—that must be maintained by suitable diet, and tonic remedies; specially under the latter head rank the preparations of iron. The hip-bath, with cold water, and the bracing measure of the shower-bath, are often salutary. Something, too, is to be done by local means: the greatest attention to cleanliness is necessary; and the injection, by means of the female syringe, either of cold water, or of a solution of alum (2 drams to $\frac{1}{2}$ an ounce of alum in the quart of water), or the decoction of oak bark, is often serviceable. Local pain and uneasiness may be relieved by the use of anodyne liniments (chloroform or belladonna), and rest in the recumbent posture.

WHITE-SWELLING, *hwite'-swel'-ing*, in Surgery, is a disease of the joints, so called from being unattended by any discoloration of the skin. It occurs most frequently in scrofulous constitutions. The knee-joint is the most subject to its attack. It is the result of chronic inflammation in the bones, cartilages, or membranes constituting the joint, and is always attended with swelling, the part being sometimes hard, at other times soft and yielding. For treatment, see the article KNEE.

WHITE VITRIOL. (See ZINC.)

WHITE WALNUT. (See JUGLANS CINEREA.)

WHITEWASHING, *hwite'-wash'-ing*, by means of lime, is one of the most powerful means of general household purification which it is possible to employ, especially on the large scale on which such purification is often required in the dwellings of the poorer classes, particularly in towns. Lime absorbs powerfully the carbonic acid from the atmosphere, and in this, and probably in other ways, tends greatly to remove the most fertile sources of disease. (See CARBONIC ACID, HOUSES, LIGHT, WALLS AND WALL PAPERS.)

WHITE WILLOW. (See SALIX ALBA.)

WHITE WOOD. (See LIRIODENDRON TULIPIFERA.)

WHITLOW, FELON, RUNROUND, OR PARONYCHIA, *hwit'-lo*, [Ang.-Sax. *whit*, white, and *low*, a flame], is abscess of a finger or thumb, but in this situation is rendered extremely distressing, and even serious, as regards the use of the member, in consequence of the matter being generally confined by the firm skin, and subjacent firm fasciæ or fibrous membranes which are connected with the tendons, by means of which the fingers are moved. The matter often has great difficulty of reaching to the surface, and of being discharged, and probably lies next the bone. The consequence of all this, especially if the inflammation is very acute, is to give rise to disease of the bone, or to mortification of the finger generally; in either case, the member is rendered worse than useless, or

requires amputation. Whitlows are certainly more common in those who employ their hands in hard labor, also in cooks and individuals who are exposed to wounds from bones, etc.

Symptoms.—The symptoms are deep-seated throbbing pain in the affected member, which continues increasing till it becomes almost intolerable, the finger feels ready to burst, and if examined, the skin is found tense and hard, and more or less inflamed. If nothing be done to remedy this state of things, the symptoms increase, the whole arm is affected, is more or less swollen and inflamed, especially in the course of the absorbent vessels (see ABSORBENTS), and the glands in the arm-pit are swollen and painful. At last the matter finds exit somewhere by the skin being ulcerated, not unfrequently about the nail. When this happens, there is relief to the severe symptoms, but probably so much mischief has been done to the member, that the results above described—mortification or death of the bone and the finger—occur, and it is lost. To prevent such a serious consequence, it is needless to say that active measures should at once be resorted to, and the case seen by a medical man as soon as possible.

Treatment.—On the first symptoms of whitlow occurring, the disease may in some cases be arrested at once, by thoroughly rubbing over the whole of the affected member with lunar caustic. (See NITRATE OF SILVER.) This proceeding, however, must be resorted to *at once*, and accompanied with reduced diet and active purging. It must be confessed, too, it is more efficacious in those the skin of whose fingers has not been hardened by labor, and in whom the disease is generally least severe. Quite the most efficacious proceeding in whitlow, when there is evidence of matter having formed (see INFLAMMATION, Pus,) is to lay open the finger down to the bone, by means of a lancet or knife; this proceeding, of course, ought to be done by a medical man if possible, but, under some circumstances, it might be resorted to by an unprofessional person. It is certainly attended with great momentary pain, but gives otherwise very great relief, and often saves a finger; after it is done, the ordinary treatment of abscess, poultice and water dressing, will be requisite. (See ABSCESS, POULTICE, DRESSING.) When from timidity on the part of a patient—although chloroform might certainly be used—or other cause, a whitlow is not opened early, the only proceeding is to poultice assiduously till the matter finds vent, to support the hand and arm in a sling, to regulate the bowels, and to soothe the excessive suffering by opiates. After the matter is discharged, poultice for a short time, followed by water dressing, will be most suitable if the finger is saved. In some of these cases, the simple poultice or water requires shortly to be exchanged for a more stimulating and astringent applica-

tion. None answers better than tincture of myrrh, in the proportions of from 2 drams to 1 ounce to the $\frac{1}{2}$ pint of water.

WHOOPIING-COUGH, OR PERTUSSIS, *hoop'-ing-kof* [Ang.-Sax.], written also *hooping-cough*; a cough in which the patient hoops or whoops with a deep inspiration of breath. On account of the violence of the cough attending this disease, the term *pertussis* has been applied to it; and on account of the recurrence of the cough in paroxysms, it is also known by the name of "chin," or "kink" cough. It is specially a disease of early childhood: thus of 130 children affected by it, M. Blache found 106 under the age of seven years, and 24 only between seven and fourteen. Whooping-cough is, in fact, one of the diseases from which the generality of persons in our climate suffer when young; the predisposition to it is so strong that comparatively few pass through childhood without having suffered from it. If they have so passed, then the predisposition is very greatly diminished, though the disease may occur at any period of life.

Causes.—Various opinions have been formed as to the true pathology of this disease. Some think it due to inflammation, others to some irritation of the brain, or pneumogastric nerve, or some of its branches, while Dr. Ley supposes that the glands of the neck become enlarged, and press upon the substance of this nerve.

Symptoms.—The symptoms commence with a simple catarrh, indicated by a cough, and the expectoration of a limpid fluid, by redness of the conjunctiva, a watery discharge from the eyes and nostrils, hoarseness, and occasional sneezing. These symptoms are generally accompanied by slight feverishness, and the patient is low-spirited and languid. Thus far, the disease closely resembles a common cold; but at about the end of one or two weeks, the character of the affection changes. The fits of coughing become longer and more frequent; a sensation of tickling in the larynx and trachea accompanies each fit, during which the inspirations are irregular, especially in the case of children, whose faces bear an expression of anxiety and fear. When the fit comes on, they cling firmly to the persons or objects near, and, if asleep, start up. The efforts of coughing then become so rapid and violent as to take away the breath; during the intervals between it is difficult to perceive any inspiratory movements, excepting at times when the cough is interrupted by a peculiar whooping sound, which has given this disease its common name. In young children, whooping-cough often becomes complicated with other diseases. The most common complication with children at the breast is cerebral congestion, giving rise to convulsions. Whooping-cough prevails as an epidemic disease, and children from birth to the period of second dentition are chiefly liable to it. Adult persons, how-

ever, are not exempt from it, and it sometimes occurs even in old age. The disease is very contagious, and when it once finds admission into a house, very few young persons, who have not had it previously, escape. It rarely affects the same individual twice, although this sometimes occurs.

Treatment.—In many cases, if the attack of whooping-cough is tolerably mild, parents never require medical attendance; but in the event of their not doing so, it is their duty to watch their children closely, and on the slightest appearance, either of inflammatory affection of the lungs, or of a tendency to convulsion, to call in proper advice, using in the interval—if there must be one—such modes of management as are recommended under these articles. (See INFLAMMATION OF THE LUNGS, CONVULSIONS.) As regards the actual treatment of the disease itself, it is questionable whether any system of medicine is of very great service, but much depends upon proper and judicious management. The diet of the child should be strictly attended to, and ought to consist chiefly of milk and farinaceous preparations, rice, barley, corn starch, tapioca, etc. (See COOKERY FOR THE SICK.) Roast apples are good; in short, a mild, unheating diet, meat being better avoided altogether, unless the child is very delicate, in which case, tolerably good broth will be the best mode of giving animal food. The bowels ought to be kept in as regular a condition as possible by means of simple aperients, and the child protected from the influence of weather. (See CLOTHING.) Indeed, if whooping-cough occurs in winter, the safer plan is to confine the child entirely to the house, and especially during the prevalence of the east winds in spring.

When expectoration is difficult, an emetic of ipecacuanha, given three or four times a week, will be useful, and a simple cough mixture containing either syrup or wine of ipecac, may be used regularly. If the cough is very troublesome, a couple of grains of Dover's powder, given to a child of three years of age, at bed-time, will moderate it. Dr. Golding Bird recommends alum as in the following prescription:

Take of Alum	Twenty-five grains.
Extract of henbane.....	Six grains.
Syrup of poppies.....	Two drams.
Peppermint water sufficient to make a three-ounce mixture.— <i>Mix.</i>	

Of which a dessertspoonful may be given every six hours. External remedies, such as embrocations, are often employed. The following will be found useful: Olive-oil, two parts; oil of amber and oil of cloves, each one part. It is stimulating, but probably any other stimulating embrocations, such as camphorated or ammoniated oil, would answer equally well. Mustard poultices, containing linseed-meal and mustard, (see POULTICE), to the chest, and between the shoulders, are often found

beneficial. If anything can be said to cure whooping-cough, it is change of air, which, in the latter stages of the affection, seems to act like a charm, and should always, when circumstances permit, be had recourse to. When the disease has passed, or is passing away, if the child, as perhaps it may be, is much reduced, strengthening remedies, tincture of iron, 5 drops, three times a day, or other tonics, with good diet, may be required. For some time after an attack of whooping-cough, more than ordinary care must be taken to guard against cold, which is very apt to bring back—in degree—the symptoms, and even the “whoop.” (See *ATOMIZER, CHILDREN.*)

WILD ALLSPICE. (See *BENZON ODORIFERUM.*)

WILD CHERRY. (See *CERASUS.*)

WILD CINNAMON. (See *CANELLA ALBA.*)

WILD GINGER. (See *ASARUM.*)

WILD INDIGO. (See *BAPTISIA TINCTORIA.*)

WILD IPECAC. (See *TRIESTEUM PERFOLIATUM.*)

WILD JESSAMINE. (See *GELSEMINUM SEMPERVIRENS.*)

WILD MARJORAM. (See *ORIGANUM.*)

WILD TURNIP. (See *ARUM.*)

WILD YAM. (See *DIOSCOREA VILLOSA.*)

WILLOW HERB. (See *EPILOBIUM ANGUSTIFOLIUM.*)

WILLOW, WHITE. (See *SALIX ALBA.*)

WIND. (See *FLATULENCE.*)

WIND-DROPSY. (See *TYMPANY.*)

WINDPIPE. (See *TRACHEA, FOREIGN BODIES IN AIR-PASSAGES.*)

WINE, *wine* [*Lat. vinum*]. Under the articles *ALCOHOL; STIMULANTS, ALCOHOLIC; PORT WINE, SHERRY, MADEIRA WINE, CLARET, CANARY WINE*, etc., nearly all has been said necessary to say on this subject, and this article is introduced for the purpose of noticing our *native American wines*. The wines of California resemble very much those manufactured in the countries of the Mediterranean, being somewhat fiery and heady, and containing from ten and a half to fourteen per cent. of alcohol. Those made from the native American grapes, east of the Rocky Mountains, resemble more closely the wines of France and Germany, but are characterized by a peculiar foxy flavor belonging to the American berry.

Wine, when good and of a proper age, is cordial and tonic; but when new, it is flatulent, debilitating and purgative, and intoxicates sooner than old wine.

The total vine production of the United States and Canada now reaches something like 20,000,000 of gallons of wine, nearly 5,000,000 gallons of which is manufactured in California. These facts point to the time as not far distant when foreign wines will be almost entirely

excluded from this market. Many prominent physicians now prescribe the American wines in preference to any other.

To avoid adulterated wines, we would advise our readers to purchase of none but the most respectable dealers.

WINTER. (See SEASONS.)

WINTERGREEN. (See GAULTHERIA PROCUMBENS.)

WITCH HAZEL. (See HAMAMELIS VIRGINICA.)

WOLFSBANE, OR MONKSHOOD. (See ACONITE, ACONITUM.)

WOMB, FALLING OF THE. (See WOMB, OR UTERUS.)

WOMB, OR UTERUS, *woom* [Ang.-Sax. *wamb*, the womb, the belly]. This most important organ is, in its ordinary condition, situated in the cavity of the pelvis, but when distended, as in pregnancy, it rises into the cavity of the abdomen. (See ABDOMEN.) Somewhat triangular in form, it is covered by the general lining membrane of the abdomen and pelvis, the peritoneum, and is held in its place by various ligaments. The affections of the womb may be considered as those which are connected with the state of pregnancy (see PREGNANCY), and those which are not. In the latter case, it is liable, though rarely, to be the seat of *inflammation*, the affection being characterized by the usual symptoms of inflammation, local and constitutional, and requiring the same management as inflammatory affection of the bowels generally. (See INFLAMMATION OF THE BOWELS.) *Congestion* of blood, *enlargements*, *tumor*, and *polypus*, diseases of its neck, including *cancer*, etc., are among the affections to which the womb is liable. It is also exposed to *displacements*, dislocations as it were, from before backwards, or the reverse; and likewise to coming or *falling down*, or as it is called, *prolapsus*.

Falling of the womb is the most usual after the time of child-bearing is past, in women who have borne large families, and especially in those who have neglected themselves after confinement, by getting up too soon. The falling, or prolapsus, of the womb, is permitted by general laxity of the parts, but especially of the ligaments which ought to retain the organ in place: it is further aggravated by the congested and enlarged state of it, which thence results. Such a state of matters cannot be too soon rectified, and by all means ought to be placed under the management of a medical man, who will recommend such an one of the various instruments contrived for such cases, as may appear most suitable. In the meanwhile, rest in the horizontal posture, and general soothing treatment, are the best palliatives.

The other displacements of the womb, backwards or forwards, are more usual in its enlarged condition; in pregnancy especially, the former is often the result of permitting the bladder to become unduly distended, so that by its weight it presses the womb out of place, and into such a

position that it cannot easily recover itself. In these, and indeed in all affections of this organ, the assistance of a medical man cannot be too soon procured; domestic treatment can do little or nothing for their permanent relief, although it may, if properly directed, palliate considerably the more urgent symptoms. The affections of the womb may of course develop with greater or less rapidity; some are sudden in their onset, and urgent in their symptoms; others arise almost imperceptibly, and go on slowly. In most cases, however, there is sense of uneasiness and dragging weight about the parts, perhaps actual pain of more or less severity; the functions of the bladder may be interfered with, irritability or difficulty occasioned; or difficulty or pain be experienced in emptying the bowels. Under some circumstances, discharges of blood or matter may take place. (See *MENSTRUATION*, *WHITES*, etc.) The constitution may more or less sympathize, and irritable fever arise, or obstinate vomiting, or dyspepsia, with excessive nervous irritability and hysteria. Under circumstances, when symptoms like the above, or others suspected to be in connection with the womb, show themselves, an individual can scarcely err in assuming, if possible, entirely the horizontal posture; if there is much pain, and especially any symptoms of feverishness, fomentations to the lower bowels, perhaps leeches, may be used; and when the suffering is great, opium given by the mouth or in injection; at the same time, the strictest attention must be paid to the due action of the bowels, by means of castor-oil, senna, etc., or in full habits by salines, perhaps following moderate doses of blue pill, but all preparations containing aloes must be sedulously avoided. Injections of cold, tepid, or warm water simply, or rendered more aperient by the addition of medicines, are often useful. The diet must be regulated according to the habit and constitution of the patient; if this be full, a reduction, especially in stimulants, may safely be made; but if the habit be moderate, the diet may be kept so too. In the weakly and debilitated, it may require to be increased, especially if there is any drain, such as discharge of blood, etc., going on. (See *ABORTION*, *MENSTRUATION*, *WHITES*, etc.) The above are palliative measures, which may be safely resorted to under most circumstances; they are, however, palliative only; curative means can only be carried out by a medical man, under whose care all affections of this organ, so closely connected with female health, happiness, and well-being, should be placed without delay—without waiting for serious symptoms to arise. Moreover, it should be remembered, that there are states of impaired health, of a dyspeptic and nervous character, especially, dependent on uterine derangement, which of itself gives no marked sign.

In some affections of the womb, it becomes absolutely necessary for

a medical man to resort to means of examination, which, though they cannot fail to be highly repugnant to the feelings, no woman of truly delicate and pure mind would object to, when it has been fully explained to her by a professional attendant in whom her confidence is placed, that such examination is positively required. It may be that the zeal of some has led them to disregard, perhaps too much, the feelings of patients suffering from these peculiar diseases, and to be too ready to avail themselves of all means of investigation, but these are the exceptions. (See CANCER, POLYPUS, TUMOR.)

WOODBINE. (See GELSEMINUM SEMPERVIRENS.)

WOODY NIGHTSHADE. (See SOLANUM DULCAMARA.)

WORM-BARK. (See ANDIRA.)

WORMGRASS. (See SPIGELIA MARILANDICA.)

WORMS, *wurmz* [Ang.-Sax. *wyrm*, *worm*, *wurm*; Lat. *vermis*], parasitical animals which infest the intestinal canal of man. They are of five different kinds—the *Ascarides*, or small thread-worms, varying from an eighth of an inch to one and a half inch in length, and having usually their seat in the rectum, or last gut; the *Lumbrici*, or long round worms, from two or three to ten or more inches in length, and usually occupying the small intestines, and sometimes the stomach; the *Trichuris*, or long, hair-tailed thread-worm, occupying the cæcum; and the *Tænia*, or tape-worm, of which there are two kinds, occupying the whole tract of the intestines, and sometimes thirty or forty feet in length. Worms appear most frequently in those of a relaxed habit, with weak digestive organs.

Symptoms.—From the highly organized and sensitive parts which they occupy, worms give rise to great constitutional derangement, and produce a variety of symptoms, more particularly affecting the stomach and head. Among these are variable appetite; fetid breath; picking of the nose; hardness and fulness of the belly; sensation of heat and itching in the anus; preternaturally red tongue, or alternately clean, and covered with a white slimy mucus; grinding of the teeth during sleep; short, dry cough; frequent slimy stools; emaciation; slow fever, with sourness of the stomach in the evening, with an evening exacerbation; irregular pulse; and sometimes convulsions or fainting fits.

Treatment.—The short and the long thread-worms, occupying, as they do, the lower bowel, are almost entirely beyond the reach of medicine administered by the stomach, and require to be treated almost entirely by injections. These may be made of infusion of quassia, of lime-water, or of olive-oil. One tablespoonful of the oil, carefully injected once a day for several days will almost invariably get rid of the parasites. Many remedies have been proposed for the destruction of the *lumbrici*, or

round worms, such as tin filings, cowhage, croton-oil, wormseed, turpentine, and santonine. It will be only necessary to give the mode of administration of the latter, as it is almost always successful. It may be given to children under four years, in doses of from 1 to 4 grains; and to children above twelve years, in doses of 6 to 8 grains, every six hours, until three doses are taken. The last dose must either be combined with 5 grains of rhubarb, or followed in two or three hours with a dose of castor-oil. It is best given in thin syrup on an empty stomach. This course may be repeated, if necessary, after the lapse of a couple of days. (See SANTONINE, WORM-TEA, ASCARIDES.)

Tape-worm may be treated with the spirits of turpentine, given after the patient has fasted for twelve hours. It may be combined with castor-oil, the mild aperient carrying off the injurious properties of the turpentine, and preventing real congestion.

Take of Turpentine One dessertspoonful.
Castor-oil..... Half an ounce.—*Mix.*

Make a draught to be given the first thing in the morning.

The bowels should be kept freely open after the expulsion of the worm, so as to shield the system from the injurious effects of the anthelmintic.

Liquid extract of male fern is very useful in getting rid of tape-worm, and may be given thus to the patient fasting:

Take of Fluid extract of male fern..... One dram.
Mucilage of acacia..... One ounce.—*Mix.*

Let the draught be taken early in the morning.

This remedy acts by killing the worm; and an active purgative must be given after an interval to expel it. A new remedy for this kind of worm has recently been admitted into the Pharmacopœia, which has been much used in India, called *kamela*. It purges freely, and may be given in doses varying from 1 to 2 drams. *Kousso*, which consists of the dried flowers of the *brayera anthelmintica*, a tree growing naturally in Abyssinia, has also been recommended in the treatment of tape-worm; and it acts very efficiently, and is much more palatable than turpentine; but sometimes its action is attended with some degree of nausea. It has no cathartic effect, but acts like the liquid extract of male fern, by killing the worm, which must be afterwards expelled by the exhibition of some active aperient. *Kousso* itself may be given to adults in $\frac{1}{2}$ -ounce doses, and to children in doses varying from 1 to 2 drams. There is also an officinal infusion, the dose of which for adults is from 4 to 8 fluid ounces. The bark of the pomegranate root has, too, been recommended, but is not much used, nor is its action so efficient as that of the preceding remedies. The author prefers the liquid extract of

male fern, as being less violent in its action than turpentine, and at the same time a very effectual remedy. (See ASPIDIUM, ROTTLEA TINCITORIA, KOUSO, PUMPKIN SEEDS, POMEGRANATE.)

WORMSEED. (See CHENOPodium ANTHELMINTICUM.)

WORM TEA. (See SPIGELIA MARILANDICA.)

WORMWOOD. (See ARTEMISIA.)

WOUNDS, *woondz* or *woundz* [Ang.-Sax. *wund*; Lat. *vulnus*.] A wound is defined as “a solution of the continuity of a soft part of the body, effected by some external agent, and attended with a greater or less amount of bleeding.” Wounds are of various kinds, and are generally distinguished as incised, lacerated, contused, and punctured. An *incised* wound, or cut, is a simple division of the fibres made by a sharp-cutting instrument. A *lacerated* wound is one in which the fibres, in place of being cleanly divided by a sharp instrument, are torn asunder by violence, the edges of the wound being in this case jagged and uneven. A *contused* or bruised wound is one made by a violent blow from some blunt instrument, the part being bruised as well as torn. A *punctured* wound, or stab, is one made with a narrow pointed instrument, as a sword or bayonet.

In *incised wounds*, the first thing to be attended to is to stop the hemorrhage. This is usually accomplished by simply bringing the edges of the wound together; but if any of the larger blood-vessels have been injured, pressing the trunk, by means of a bandage or tourniquet (see BANDAGES, TOURNIQUET), will be necessary; and should this not succeed, the vessels must be secured with ligatures. (See ARTERY, ARTERIAL HEMORRHAGE, HEMORRHAGE, LIGATURE.) Next, care should be taken that all extraneous substances are removed from the wound. This may be accomplished by the careful use of a small forceps, and by washing the part with cold water. Then the edges of the wound are to be brought together, and retained either by straps of adhesive plaster, or in some situations by one or two stitches. (See SUTURE.) Generally such wounds heal very quickly, without any suppuration taking place, or, as it is said, “by the first intention.” When, however, this is not the case, and suppuration comes on, all attempts to procure union by the first intention should be abandoned, the plasters and bandages removed, poultices and warm dressings (see POULTICE, DRESSING,) had recourse to, to remove inflammation, and afterwards healing ointments applied. (See OINTMENTS.) One of the very best applications to suppurating wounds is a thorough washing, morning and evening, with carbolic acid and water, 1 dram of the acid to 1 pint of water.

Lacerated and contused wounds require to be similarly treated; but they heal less kindly, and suppuration almost always takes place. The

swelling and inflammatory symptoms which commonly attend contused wounds are to be diminished by cooling lotions or emollient poultices. (See LOTIONS, POULTICE.)

Punctured wounds are dangerous from their depth, and the internal effusion of serum and blood which usually attends them. They are frequently also followed by severe inflammation and suppuration. The same general principles apply in this case too. Sometimes it may be necessary to enlarge the wound a little, so as to remove the stretching of the parts; and to lessen the inflammation, leeches and fomentations are often required. (See FOMENTATION.)

Poisoned wounds are wounds in which the division of the tissues, or even the abrasion of the outer skin is accompanied with the insertion of poison of some kind, whether that of a gnat or of a wasp, of a rabid dog or of a snake. For full treatment of this class of wounds, see BITES AND STINGS.

Poisoned wounds, such as those sometimes received in dissection by medical men, or by cooks, and others who have to handle dead animal substances, are apt to give rise to symptoms resembling whitlow or felon, and require similar treatment. (See WHITLOW.) They may, however, place life in much jeopardy by the constitutional affection they give rise to, and by causing the formation of abscesses in various parts of the body. Such, and indeed any severe cases of poisoned wounds, ought to be put under medical care without delay.

Gunshot wounds, is a term employed to denote wounds produced by cannon balls, bullets, fragments of shell, etc., striking against the body. They differ in many respects from ordinary wounds. When a ball enters the body, the wound appears somewhat smaller than the ball itself; its edges are ragged and inverted, and the part around has a bluish or black color from the bruise. When it passes through the part, the aperture by which it makes its exit presents quite a different appearance. It seems somewhat larger than the ball, the edges are everted, and there is little discoloration about the wound. Frequently a ball, if it enter obliquely, or be nearly spent, instead of pursuing a straight course, becomes deflected, and may be found lodged in, or may pass out, at a part at a considerable distance from that at which it entered. Excessive bleeding is not so common after gunshot wounds as after other kinds; but it sometimes occurs, and may be fatal if not attended to. Where it can be done, the finger should be inserted into the wound, and pressed upon the vessel, otherwise a handkerchief should be tied very tightly round the limb above the wound. It is well to examine the wound as early as possible, in order to ascertain the amount of injury; at least, so far as this can be done without aggravating the case. The ball or other foreign substance ought to be removed, if that can be easily

effected; but otherwise, it ought, in the meantime, to be let alone. As the walls of the wound slough and suppurate, the opening will become larger, and it may then fall out or be easily removed. Sometimes it may remain embedded in the tissues, without producing much or any inconvenience. If, after the sloughing and suppuration, the ball remains fixed, and if much irritation continues to be excited, and abscesses form about its track, then it may be necessary to find out its seat, and use every means to remove it. The simplest dressings should only at first be applied to the wound; as a piece of linen, spread with some mild ointment, fixed on lightly by strips of adhesive plaster, and covered with a rag kept constantly moist with cold water. Aperient medicines should also be given, and sometimes it is advisable to bleed the patient. After a few days, when suppuration has set in, the treatment should be changed, and in place of the cold application, some warm emollient poultice, or lint dipped in warm water, should be adopted, and the system strengthened by mild tonics and a nutritious diet. The inflammation which precedes suppuration is usually very intense, accompanied with great swelling, heat, and pain of the surrounding parts, and severe constitutional disturbance, fever, sleeplessness, etc. These symptoms change when suppuration is fairly established, the surrounding inflammation is lessened, the fever subsides, and in slight cases the health may seem but little affected. In severe cases, however, hectic fever supervenes, with debility, copious night sweats, and diarrhoea. Secondary hemorrhage not unfrequently occurs during the separation of the slough, in consequence of the ulceration of some of the larger blood-vessels, which may have been injured by the ball. In all these cases it will be absolutely necessary to secure the assistance of a competent medical man. (See AXILLA, BANDAGES, COAGULABLE LYMPH, DRESSING, SUTURE.)

WRIST. (See CARPUS, DISLOCATIONS.)

WRIST-DROP. (See DROP-WRIST.)

WRY-NECK. (See NECK.)

X.

XANTHORHIZA APIIFOLIA, *zan-tho-ri'-za a'-pe-i-fo'-le-a*, or yellow root, a small perennial shrub belonging to the Nat. order *Ranunculaceæ*. It is found along river banks and on the sides of mountains in the Middle, Western and Southwestern States. It is a very bitter tonic, said by some to be superior to colombo, and may be used in all cases where simple bitter tonics are required. Dose: of the fluid

extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 1 to 2 teaspoonfuls; of the decoction, 1 to 2 tablespoonfuls; and of the powdered root, 20 to 40 grains, three or four times a day. (See DECOCTION.)

XANTHOXYLUM FRAXINEUM, *zan-thoks'-e-lum fraks-in'-e-um*, or prickly ash, an American tree belonging to the Nat. order *Xanthoxylaceæ*. It is found growing in woods and on river banks in various parts of the United States and Canada. It is known by the common names, yellow wood, pellitory and toothache bush. The bark and the berries are the parts generally used in medicine. It is stimulant, tonic and alterative, and is used in languid conditions of the system, in rheumatism and derangements of the liver. It is a valuable tonic in low fevers. It yields a resin named xanthoxylin. Dose: of the fluid extract, 15 to 45 drops; of the tincture, $\frac{1}{2}$ to $1\frac{1}{2}$ teaspoonfuls; of the infusion, 1 pint to be taken in divided doses during the twenty-four hours (see INFUSION); xanthoxylin 2 to 6 grains.

Y.

YAM, WILD. (See DIOSCOREA VILLOSA.)

YARROW, *yar'-ro* [*Achillea Millefolium*], a perennial plant belonging to the Nat. order *Asteraceæ*. It is known also by the name of milfoil. It is a native of both Europe and North America. It is a mild aromatic tonic, antispasmodic and astringent, and is employed in intermittent fever, flatulent colic, and nervous affections, for the suppression of hemorrhages, profuse mucous discharges, and in low forms of eruptive fevers. Dose: of the fluid extract, from $\frac{1}{2}$ to 1 teaspoonful; of the infusion, 2 to 4 fluid ounces, three or four times a day; and of the essential oil, from 5 to 20 drops. (See INFUSION.)

YAWNING. (See GAPIING, OR YAWNING.)

YAWS. (See FRAMBÆSIA, OR YAWS.)

YEAST. (See CEREVISIÆ FERMENTI.)

YELLOW BARK. (See CINCHONA.)

YELLOW DOCK. (See RUMEX.)

YELLOW-FEVER, *yel'-lo-fe'-vur*, is a specific fever of a continuous type, produced by a specific germ, propagated by contagion, and attended by yellowness of the conjunctiva and skin, delirium, suppression of urine, hemorrhages, black stools, a slow, and at times an intermittent pulse, and *black vomit*, or the vomiting of a black or dark-colored fluid, when about to terminate fatally. Cases have occurred as high as four thousand feet above the level of the sea, but as a rule it is endemic in

low districts, near the sea-coast. The mortality is always very great, particularly among the young and robust. It generally lasts from three to seven days, but death frequently comes in a few hours. To no other great nation is the yellow fever so calamitous as the United States. In the year 1878 more than one hundred thousand were stricken, and twenty thousand lives sacrificed. It has invaded the United States in eighty-eight different years. For seventy-seven of these we have evidence of importation, and in many cases the evidence points to the West Indies as the source of infection.

Symptoms.—The principal symptoms are those already enumerated, and also great pain in the front of the head and eyes, excessive restlessness, great anxiety with feebleness of both mind and body.

Treatment.—The treatment of yellow fever is still in a very unsatisfactory state. One thing is certain, that rest and quiet in a large airy room, under the care of a good nurse, is an indispensable part of the treatment. No specific is known for the disease. Small doses of quinine, 2 grains every hour, are said to be productive of good. In some epidemics 5 to 10 minims of chlorodyne administered every two hours, have proved very efficacious. Where there is suppression of the urine, dry cupping over the region of the kidneys, followed by friction and stimulating liniments, are indicated. There is much evidence in favor of what is known as the cold water treatment. Ice in small quantities is given the patient, and at the same time he is enveloped in wet blankets renewed every fifteen minutes or half an hour, and kept up for four or five hours. The following are the results arrived at by the Yellow Fever Commission appointed by the Government during the late terrible epidemic of 1878:

1. We have not in a solitary instance found a case of yellow fever which we could justifiably consider as of *de novo* origin, indigenous to its locality.
2. In respect to most of the various towns which we visited, and which were points of epidemic prevalence, testimony showing the importation was direct and convincing in its character.
3. The transmission of yellow fever between points separated by any considerable distances appeared to be wholly due to human intercourse. In some instances the poison was carried in the clothing or about the people going into infected districts. In others it was conveyed in such fomites as cotton bagging or other goods of same description.
4. The weight of the testimony is very pronounced against the further use of disinfectants. Physicians in infected towns almost without exception, state that they are useless agents to arrest the spread of yellow fever, while some of them affirm that their vapors are seriously prejudicial to the sick.
5. Personal prophylaxis, by means of drugs or other therapeutic means,

has proved a constant failure. A respectable number of physicians think that the use of small doses of quinine is of some use in prevention. 6. Quarantines established with such degree of surveillance and rigor that absolute non-intercourse is the result, have effectually and without exception protected its subjects from yellow fever. (See FEVER.)

YELLOW GUM, OR ICTERUS INFANTUM, *yel'-lo gum*. A form of jaundice which affects infants, at, or shortly after their birth, and usually continues for some days. It is not dangerous, and as a rule disappears without any treatment. Two grains of gray powder may be given to operate on the bowels, followed by the time-honored saffron-tea. It can at least do no harm, if it do no good.

YELLOW JESSAMINE. (See GELSEMINUM SEMPERVIRENS.)

YELLOW LOCUST. (See ROBINIA PSEUDO-ACACIA.)

YELLOW OR BROWNISH SPOTS. (See EPHELIS, FRECKLES.)

YELLOW PARILLA. (See MENISPERMUM CANADENSE.)

YELLOW POND LILY. (See NYMPHÆA ODORATA.)

YELLOW PUCCOON. (See HYDRASTIS CANADENSIS.)

YELLOW ROOT. (See XANTHIORHIZA APIIFOLIA.)

YELLOW-ROOTED WATER DOCK. (See RUMEX.)

YOUTH. (See PUBERTY.)

Z.

ZERO, *zé-ro* [probably from the Arabic *tsaphara*, empty]. This term, meaning nothing, is used to denote a cypher, and fill the blank between the ascending and descending numbers in a scale or series. Zero, in the thermometers of Celsius and Reaumur, is the point at which water congeals. The zero of Fahrenheit's instrument is fixed at the point at which the mercury stands when immersed in snow and common salt, and is 32° below the freezing point of water. In Wedgewood's pyrometer, the Zero corresponds with 1077° in Fahrenheit's scale. (See THERMOMETER, COLD, HEAT.)

ZINC, *zingk* [Ger.], is a bluish-white lustrous metal, having a crystalline lamellar structure, moderate hardness, and fusing at 773° Fahr. In medicine, *oxide of zinc* is used externally, or in the form of ointment, as an astringent and desiccant, and internally as a tonic, especially in cases of nervous debility brought on by drinking. Dose, from 2 to 10 grains. *Nitrate of zinc* is prepared by dissolving zinc in dilute nitric acid. *Sulphate of zinc*, or *white vitriol*, is used in medicine as an emetic. In small doses of 1 or 2 grains, it is tonic and astringent,

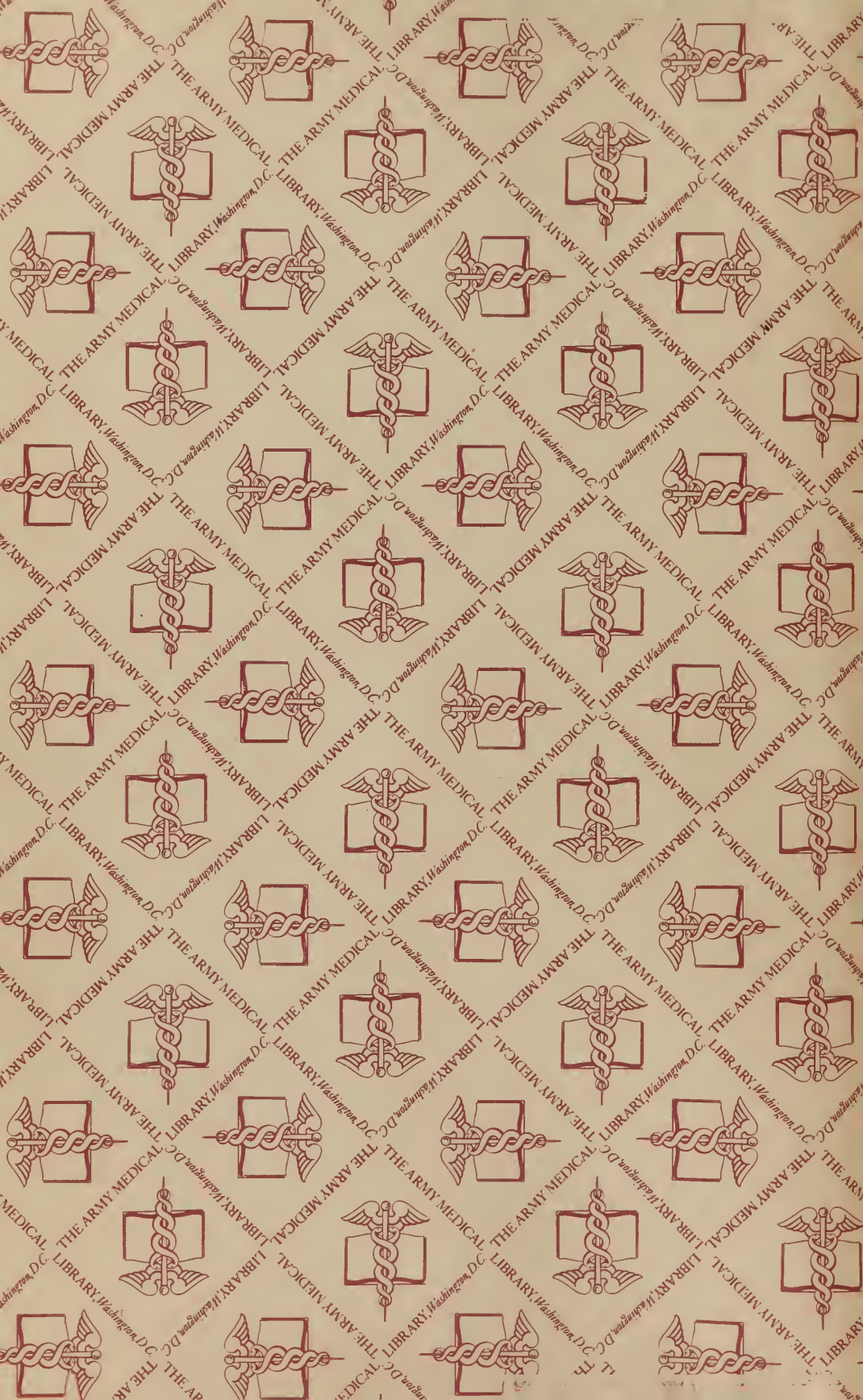
and is used chiefly in spasmodic diseases, as epilepsy, Saint Vitus's dance, etc.: it is also used as a styptic, and as a wash for indolent ulcers. *Carbonate of zinc*, or *calamine*, is the chief ore of zinc, and is employed in its impure state in medicine as an exsiccant, and in healing cerates. The *acetate of zinc* is given in doses of 1 to 2 grains as a tonic, and 10 to 20 grains as an emetic. *Chloride of zinc*, or *butter of zinc*, is remarkably soluble in water, and its strong affinity for that substance renders it of great use as a desiccating agent in organic research. In solution, it forms Burnett's disinfecting fluid. It is a powerful escharotic when applied to the skin, and is used in surgery for that purpose. *Valerianate of zinc* is used in medicine in combating nervous disorders, in doses of 1 to 3 grains.

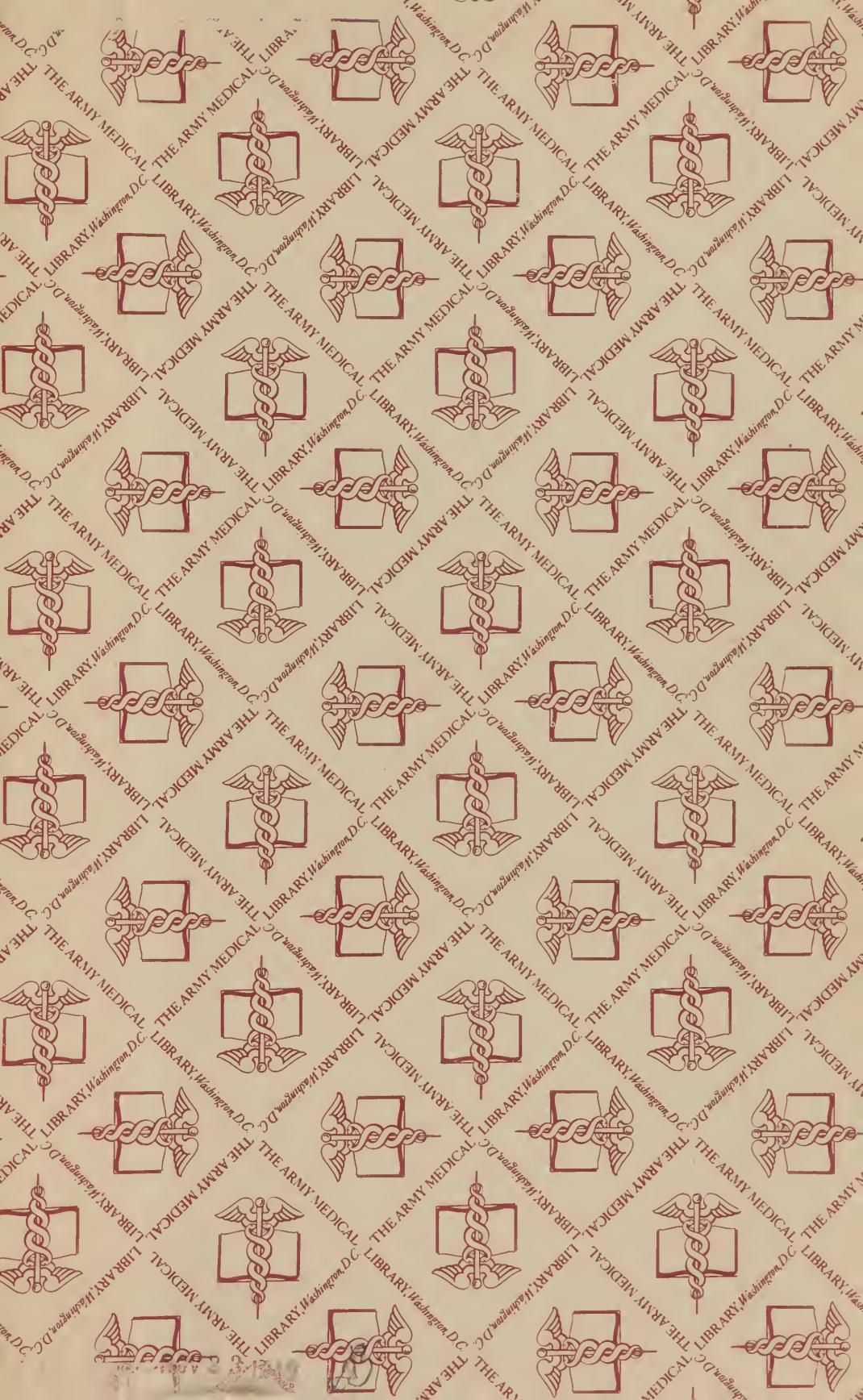
ZINGIBER OFFICINALE, *zin'-ji-bur of-fis-end'-le*, or ginger plant, belonging to the Nat. order *Zingiberaceæ*. The root is the portion in which the virtues of the plant reside. It is a native of the East and West Indies and of tropical America. The Jamaica ginger is considered the best. Ginger is a grateful stimulant and carminative, often given in dyspepsia, flatulency and imperfect digestion, as well as in colic, nausea, gout, spasms, cholera morbus, etc. It is particularly valuable to travelers, who are exposed to complaints of the bowels, arising from change of climate and exposure, or from the use of unwholesome water. It is much used to mask nauseous drugs, and to prevent their tendency to produce griping. A local application of the concentrated tincture (one part of ginger and two of proof spirits) over the whole forehead, has been attended with remarkable success in shortsightedness. Dose: of the fluid extract, $\frac{1}{2}$ to 1 teaspoonful; of the tincture, 10 to 60 drops; of the syrup, 1 to 2 teaspoonfuls; of the powder, 10 to 20 grains. The infusion, commonly known as "ginger tea," is an excellent preparation to take in the incipient stages of common cold.

ZOOLOGY, *zo-ol'-o-je* [Gr. *zoon*, an animal, and *logos*, a description]. That branch of natural history which treats of animals.

ZYMOTIC, *zi-mot'-ik*. The term includes the various epidemic, endemic, and contagious diseases, such as fever, small-pox, etc., which originate, or are supposed to originate, from a morbid poison being introduced into, and gradually extending itself throughout the system. The process is likened to that of fermentation, and the term is derived from the Greek verb signifying to ferment.

more





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